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ABSTRACT

This volume reports on the Case Study Project, an initiative that evaluates the experiences of math and science teachers across the United States and includes levels of schooling and achievement levels. The report focuses on typical public schools in the United States at three levels: elementary, junior high, and senior high with the intent of creating a composite profile of typical schools. The volume is divided into five chapters: "Rationale for the Study," "The Development and Implementation of Education Standards in the United States," "Individual Differences and the United States Education System," "The Role of School in United States Adolescents' Lives," and "Teachers and the Teaching Profession in the United States." Results show that the typical school had adopted curriculum standards or guidelines proposed by state departments of education, rather than by a national body. One exception to this was the influential set of national guidelines developed by the National Council of Teachers of Mathematics. Despite the general interest in standards, the choices made by parents, teachers, and students reflected many values, of which the desire for independence was one of the strongest. Students who were surveyed exhibited high optimism, especially those students from middle- class families. (RJM)

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The Educational System in the United States: Case Study Findings

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Explain why each of the above is important in maintaining the ecosystem in the aquarium.

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The Educational System in the United States: Case Study Findings

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U.S. Department of Education

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Executive Summary

The landscape of education in the United States is characterized by diversity. This includes diversity in the socioeconomic backgrounds of students, curricula, types of programs, size of classes, and resources available to the schools. This diversity is generated, in part, by a tradition of local control of schools by boards of education, which are composed of members chosen through local elections, and it is these boards of education that bear the responsibility for overseeing the funding of schools. The resources available to schools depend on the size of the local tax base and the willingness of local residents to approve increases in funding for schools.

Diversity was evident in the actual practices and resources among the schools in the three locations. One elementary school was experimenting with nonage-graded classrooms. Another was using portfolios instead of grades to evaluate students. Whole class instruction was observed, as well as the use of cooperative learning groups. In terms of resources, some schools had the latest model computers, for example, while the computers available in other schools were more than a decade old.

We try in this volume not to concentrate on these types of diversity but to focus on typical public schools in the United States at three levels: elementary, junior high, and senior high. The challenge has been to provide a composite profile of typical schools. The findings that emerged from the interviews and observations allow us to attempt to draw such profiles.

Standards

We found that the typical school has adopted curriculum standards or guidelines proposed by state departments of education, rather than by a national body. One exception is the influential set of national guidelines developed by the National Council of Teachers of Mathematics (NCTM). Many schools have used these guidelines to upgrade their mathematics curriculum and have enthusiastically embraced the NCTM guidelines. These guidelines describe the accomplishments that would be expected of students at various grade levels. In addition, a set of national education goals, known as Goals 2000, has served to provide goals to be attained by the nation in the next several years. By indicating, for example, that the nation should be number one in math and science by the year 2000, the goals function as additional guidelines for schools. It seems unlikely, on the basis of comments by teachers and parents, that the interest in improving standards for education will result in explicit sets of national guidelines or goals, but rather that such efforts will result in the adoption of voluntary standards prepared by nongovernmental organizations.

Most of the teachers, administrators, parents, and even students recognized the need for increasing academic standards and were supportive of adopting higher such standards for all students. At the same time, many expressed concerns about the standardized tests and examinations used to measure attainment of standards. Some teachers and administrators criticized standardized tests as being administered too frequently and without a clear purpose.

Teachers and administrators were also concerned about having the results from standardized tests evaluated in comparison with those from schools in other, more advantaged neighborhoods with fewer social problems. Others expressed concern that cultural biases were inherent in standardized testing. At the same time, the greatest fear among many of the teachers was that higher standards could lead to the need to "teach to the test" rather than to nurturing the unique qualities and abilities of each child. Standardized test scores of students, in addition to informing the teachers and administrators at a school, often were interpreted by parents as an index of the quality of the school and became an important influence in such matters as parents' decisions about where to live or to purchase housing.

Despite the general interest in improving standards, both parents and teachers, especially teachers at the primary research site, expressed reservations about the need to adhere to state standards. However, in the typical school, teachers were not expected to organize their lessons in a manner that would be considered "teaching to the test." Rather, teachers were given a great deal of autonomy in presenting the curriculum and in developing their own unit tests for in-class use. A limited amount of test preparation, often including in-class review of questions from old examinations, did take place in some schools several weeks before the administration of the state's standardized tests.

Ability Differences

Discussions held with parents and teachers about differences in ability among children revealed broad recognition of differences in students' achievement in mathematics and science. The breakdown of the family, poverty, and lack of parental involvement in their children's schooling were often cited by parents, teachers, and students as barriers to academic achievement for many students, and they perceived the demographic trends in these areas as the primary sources of problems that have emerged in the country's schools. Most respondents stated that, more than anything else, the presence or absence of family support was the basis of differences in students' achievement in mathematics and science.

The schools we visited dealt with differences in ability in many ways, but nearly all had developed some form of tracking or ability grouping. Tracking was common in junior and senior high schools, while the more common practice in elementary schools was to rely on "pull-outs," in which children needing special assistance were removed from their regular classroom for special tutoring. Separating students into tracks or ability groups on the basis of academic achievement was a source of friction between teachers, administrators, and parents. The contradictions between the goal of meeting each students' needs and objections to the practices of tracking and grouping were hard to resolve for many parents, many of whom stated that they wanted fairness but also wanted their children to be challenged academically.

Programs for gifted students were less common than remedial programs, and most schools that we visited spent a considerable portion of their resources on remedial instruction. Special education programs were also common, but enrolling children with disabilities in regular classrooms was a frequent practice, especially during the elementary school years.

Many of the conversations about ability differences eventually resulted in discussions of special education programs for students of low academic ability, as well as for those with emotional, psychological, and physical handicaps. Every school in the sample had remedial and special education programs, but the degree to which physical and monetary resources were available for these programs varied widely.

Among high school students, individual differences in ability and achievement were typically handled by enrolling students in classes of different levels of difficulty. This was true for high school courses in mathematics and science, where courses were usually taught at vocational, general, and advanced levels. Many high schools also offered advanced-placement courses. The courses in which college-bound students enrolled depended upon their ability, interests, and prior preparation. The typical school system attempted to meet the instructional needs of students of different levels of achievement and motivation through these procedures, while at the same time attempting to maintain equality of access and opportunity to all students.

No national policy exists regarding the treatment of ability differences among students. Although federal law mandates particular types of programs for students with special needs, local school districts and school administrators tended to implement those practices that they believed were most appropriate for their situation.

Adolescents

Adolescents in the United States juggle many activities, of which academic performance is important but not necessarily central. Many expended a great deal of time in nonacademic activities, such as socializing with friends and participating in sports and other types of extracurricular activities.

High value was placed on being well rounded, and most students said they strove to be good at a number of things, including their schoolwork. Parents, teachers, and students alike said that colleges expect more from incoming students than solid academic records; as a result, many students try hard to do well in nonacademic endeavors. Rather than being perceived primarily as places for academic learning, schools in the United States were seen by both students and their parents as places for social, athletic, and career development.

Many of the high school students we interviewed reported having part-time jobs. Part-time employment was valued by many students and parents as a way for students to begin the transition to adulthood and independence, but part-time jobs competed with academics for time and energy.

Most adolescents viewed school as a necessary passage to the next stage in their lives, whether their futures involved additional schooling or seeking a job. Very few schools we visited were oriented toward preparing students for work, in spite of the large numbers of students who enter the work force immediately after graduation. Efforts at counseling and guidance and the materials available for students generally tended to be primarily relevant for college-bound students rather than for the students in vocational education programs.

Middle-class students were generally positive about school and were especially enthusiastic about their math classes, which they often mentioned as their favorite classes. The majority also looked forward to the future and expected that after completing their education they would be qualified for a well-paying job. Students from disadvantaged homes, however, were less enthusiastic about their education and their future and often questioned whether they would be able to find any job at all.

Teachers

The picture that emerged from discussions with teachers revealed a profession that required its participants to assume multiple roles and to accommodate ever-increasing demands from administrators and parents. Playing these multiple roles often limited the amount of time and energy teachers had available for their professional development and for preparing for their classes.

Teachers had entered the profession for many reasons, including long summer vacations and favorable working conditions for women. It did not take long for them to realize, however, that the profession they had entered was very demanding and often stressful.

Elementary school teachers were trained primarily in professional schools of education, rather than in academic departments in the sciences and humanities. After a period of student teaching, the new teachers in elementary schools were assumed to be capable of handling a full teaching load, which typically included all academic subjects. High school teachers, in contrast, spent much greater amounts of time during their college years studying in the discipline in which they hoped to specialize and either majored or elected many of their courses in that academic subject. Most high school teachers anticipated teaching in no more than one or two subject areas.

Teachers reported working in relative isolation, with limited time and opportunities for collaboration with colleagues. This was not universally the case, however, for in some schools teachers were given high degrees of responsibility for developing the curriculum and the practices and procedures that would be followed in the school. In the case of beginning teachers, in some schools they were given little opportunity to learn from their experienced colleagues; in other schools, it was expected that the new teachers would be guided and assisted by experienced colleagues in their adjustment to full-time teaching.

The schedule of U.S. teachers typically involved teaching at least four or five classes each day. This obligation, in addition to other duties required of teachers, meant that there was little free time for them to interact with other teachers, discuss professional matters, prepare for classes, or grade papers. As a result, most teachers completed some of these duties at home, after-school hours. Teachers generally arrived at school early each morning and unless they were required to attend meetings or to supervise extracurricular activities, left for home in midafternoon.

There was a tendency for teachers to seek positions in suburban school districts at the expense of urban schools. Suburban districts often offered teachers more flexibility, higher pay, more motivated students, and more favorable working conditions. In addition, suburban students were often better prepared for school and there was greater parental support and involvement in education. Given these incentives, urban schools experience difficulty in retaining skilled teachers.

In an era when efforts at school reform have become widespread, teachers reported that they were often overburdened by the need to adhere to the reforms in curricula, innovations in teaching practices, and new administrative tasks. In schools where there was little or no assistance for teachers, these additional responsibilities were reported to be overwhelming. Because of the rapidity of change and the increase in demands, the main complaint of U.S. teachers was lack of time to accomplish all of the tasks for which they were responsible.

General Attitudes

The choices made by parents, teachers, and students reflected many values, of which the desire for independence was one of the strongest. The desire for independence appeared repeatedly during the interviews and observations. Allowing students the freedom to dress as they wished in school and to choose courses that matched their personal interests and goals were some of the ways in which schools met the students' need for independence. The large number of elective courses in American high schools and the ability of teachers to devise their own interpretations of the curriculum are other examples of the desire for independence that appears to characterize participants in education in the United States.

There was a great deal of optimism among students, especially among students from middle-class families. Many expressed high academic and occupational aspirations for themselves-aspirations that were sometimes unlikely to be met because the student's poor performance in school would limit his or her access to the accomplishments and experience necessary for obtaining the desired schooling or job.

We conducted this study in a time of many transitions and innovations in U.S. school systems and of increased emphasis nationally on the improvement of education. As a result of this heightened level of activity and interest in education, we observed a degree of diversity in approaches to education that has seldom been matched in the history of education in the United States. The next step will be to evaluate how successfully these various approaches meet the increasing demands that are being placed on U.S. schools.

Chapter 1

Rationale for the Study

By: Barbara Hofer

Introduction

As U.S. educators strive to improve the quality of public schooling through comprehensive reforms, international comparative studies have become increasingly important. Recent studies indicate that U.S. students fare relatively poorly on standardized tests of math and science, but little research has been conducted that would enable educators to understand the complex nature of academic achievement within differing cultural contexts. Such studies are necessary in order to interpret achievement outcomes as well as to provide a foundation for improvement.

To address this need, the U.S. Department of Education contracted for case studies of education in the United States, Germany, and Japan as a complement to the Third International Math and Science Study (TIMSS). The TIMSS study, conducted in the spring of 1995, measured math and science achievement of 4th-, 8th- and 12th-grade students in 50 countries and collected questionnaire data from the participants. The Case Study Project was designed to provide rich descriptions of the academic and cultural contexts in three selected countries: the United States, Germany, and Japan. This volume reports the results of the case studies conducted in the United States.

The interviews and observations in each of three countries focused on four topics of central concern to U.S. education officials: national standards in education, teacher's preparation and working lives, the role of school in adolescents' lives, and how individual differences in ability are addressed by the educational system. The qualitative analyses that follow provide a context for interpreting the TIMSS data.

Understanding math and science achievement in the United States is not an easy task, particularly because of the diversity among students and the multiplicity of experiences within schools. For example, we observed 12th-graders in calculus classes studying applications of number theory and other 12th-graders who were enrolled in basic algebra. Moreover, a significant number of 12th-graders in the United States are not enrolled in any math classes, having already fulfilled the minimum high school requirements in their state. There are enormous differences in schools, curricula, student preparation, and expectations of students that precludes simple descriptions of the nature of U.S. schooling. This study seeks to provide a window on this complex set of issues by providing a descriptive portrait of selected aspects of the context of math and science achievement in the United States.

Methodology

An ethnographic case study method was used to explore the four topics. The research project was initiated with the preparation of reviews of the literature on each topic within each of the three countries. This information provided a basis for the development of research protocols, to be used to guide the interviews and observations. The protocols were constructed by a team of multilingual educators, psychologists, sociologists, and anthropologists from the University of Michigan and reviewed by education researchers in Germany and Japan. Further refinement occurred in consultations with the field researchers, all specialists in the selected areas of the study. This approach ensured that the questions studied were applicable in all three countries. The National Center for Education Statistics' (NCES) review boards also provided guidance on the topics and questions, in order to confirm their relevance for U.S. education policy.

The field researchers participated in a week-long training session at the University of Michigan, where they received background information on the study, learned to use qualitative data analysis software, and met in teams organized both by topic and by country. Within these teams, researchers reviewed guidelines for each set of interviews and worked toward a common understanding of the research goals. These steps were essential to provide some consistency of collection of data in an ethnographic study that involved multiple sites, different languages and cultures, and researchers with varying academic backgrounds.

With assistance from NCES and consultants from Japan and Germany, three urban communities in different regions of the United States were selected as research sites that would be as comparable as possible to the sites in the other countries in terms of size, economic base, and status. Researchers spent up to 3 months each in the primary site and visited the others for shorter periods of 3 to 4 weeks.

The purpose of the fieldwork in the secondary sites was to generate diversity in the sample of cities to test the validity of the findings from the main site.

School achievement data were utilized to select a range of schools within these communities. A total of 16 schools were chosen for participation, representing low, middle, and high academic achievement as well as socioeconomic and ethnic diversity. At each school, teachers, parents, administrators, and students were selected for participation. Because the TIMSS study focuses on achievement data at 4th, 8th, and 12th grade, efforts were made to select corresponding grade levels for classroom observations and to select students from these grades for interviews.

Six experienced researchers conducted most of the interviews and observations in the United States schools with additional fieldwork conducted by research staff from the Case Study Project at the University of Michigan's Center for Human Growth and Development. Each week researchers in the field summarized and reported their major findings. Also, members of the research team were in contact with each other and with the staff at the University of Michigan via e-mail.

In the development of a comparative, ethnographic study of education in three countries, one must be especially careful in attempting to characterize the education system of one's own country. We were fortunate in writing these chapters on the United States that many of the researchers were bilingual and were able to conduct observations and interviews in more than one country. Returning from fieldwork in Germany or Japan, they were able to see the United States education system through a new lens with heightened awareness of contrasts and ability to view from this new perspective what had previously been ordinary. Furthermore, we had several researchers contribute to the fieldwork for each topic, an unusual approach for ethnographic work, and conversations among these teams during the analyses, as well as careful reading of drafts for corroboration of findings, proved valuable.

Where possible, respondents were matched with interviewers of similar ethnic backgrounds. An African-American ethnographer interviewed the majority of African-American students and parents, and an Hispanic interviewer interviewed Hispanic students and parents; where appropriate, these interviews were conducted in Spanish. After data collection was completed, these individuals met with the primary field researchers to provide perspectives on significant issues.

Interview and observational data were entered by the researchers into a qualitative data analysis program, HyperQual2. This step enabled the researchers to tag passages that referred to frequently occurring themes or topics of interest, so that data could be sorted for further analyses. Various members of the United States research team met periodically to discuss their findings, and the group communicated electronically with each other and with the research staff at the University of Michigan throughout the project. Following the field research, data were electronically transmitted to the University of Michigan. This allowed the authors of the chapters to use material collected by other members of the team as well as by themselves.

In the course of analyzing the data for each of the topics, each researcher reviewed many hundreds of pages of data. To present a reliable picture of contemporary American responses to the main topics of the study, it was necessary to try to find common themes but at the same time to adequately represent the wide variety of opinions, ideas, and practices that exist in the United States. In addition to the ethnographic data, authors at times refer to related literature and national statistics. The topical reviews of the literature conducted before our field investigation provided much of this contextual information.

Structure of the United States School System

The United States public schools are divided into elementary and secondary education, with a number of variations in how this division is configured, typically decided at the local level. One of three common patterns prevails in most communities:

- Elementary school (K-5), middle school (6-8), high school (9-12);
- Elementary school (K-6), junior high school (7-9), high school (9-12); and
- Elementary school (K-8), high school (9-12).

There are many other subtle variations on these patterns throughout the country, and decisions about the structure may have a strong pedagogical rationale or may be the consequence of differences in funding, demographics, and physical resources. The current trend is toward the first pattern, with the recognition of early adolescence as a period requiring a form of schooling distinct from that of older adolescents. In the United States, elementary students are typically in one classroom with the same teacher most of the day, perhaps seeing other teachers for special classes, such as art and music, while high school students move from class to class each period, with new teachers and a new mix of students in each of the classes. Junior high schools mimic the high school pattern, while middle schools generally offer a means for students to ease into this system, usually with students moving as a group to teachers who work as a team, serving the same block of students within the school.

All children in the United States have access to free public schools and, in most states, are required to attend school until the age of 16. Most students attend public schools, but private schools, both religious and nonsectarian, are also available. Students must pay tuition to attend a private school. On average, the school year is about 180 days, and the school day averages 6.5 hours.

Funding and Governance

Public elementary and secondary education is primarily the responsibility of state and local governments, which contribute about 92 percent of school funding, about half of that from the state and the other half local. This decentralized approach has led to variability of opportunities for education, a problem the federal government has attempted to address through federal assistance grants designed to equalize opportunities.

Decisions regarding education policies and curricula are shared by the three levels of government. The U.S. Department of Education collects data on all aspects of the United States education system and makes recommendations at the national and state levels, but it does not regulate school operations or set standards. Public education is largely a state responsibility, with community control achieved through locally elected school boards. States regulate the number of school days, but local districts determine the length of the day and the school calendar. States also set the courses required for high school graduation, but curriculum guidelines are generally determined at the local level, and more specific decisions, such as choice of textbook and classroom instructional methods, are generally made at the school level by teachers and school administrators.

The Research Sites

For the three research sites, we selected cities of varying sizes, located in different regions of the country and with different ethnic compositions. Within the main research site, both urban and suburban school districts were represented, thereby increasing the diversity of the sample. Cities, schools, and individuals have been given pseudonyms throughout the study in order to protect confidentiality. The primary site is referred to as Metro City and the secondary sites as East City and West City.

Metro City is a major metropolitan area of nearly 6 million people located in the midwestern region of the United States; its economy is based on manufacturing, finance, and publishing. The city has historically attracted immigrants from all over the world, and the population is ethnically diverse. Nearly 20 percent of Metro City families have incomes below the poverty level.

West City is a large metropolitan area comprised of approximately 1.5 million people and is located in the western part of the United States. Once primarily agricultural, the community is now home to large manufacturing concerns and high technology enterprises. The population is ethnically diverse, with a large number of Hispanics. Less than 7 percent of the families in West City live below the poverty level.

East City, located in the southeastern United States, has a metropolitan population of approximately three-quarter million people. The rapidly growing community is a major transportation hub and is home to major industry, high technology firms, and various businesses and services. The population is more than two-thirds whites and more than one quarter African-American. Approximately 8 percent of the families in the city live below the poverty level.

Selection of Schools

At the main study site, we selected schools that represented the range of schools sampled for the TIMSS study. High-achieving, middle-achieving, and low-achieving schools, as measured by state standardized test results, were included among the elementary, middle schools, and high schools that we chose for the Case Study Project. In addition, the schools represented the full range of ethnic diversity, from predominantly white and predominantly African-American populations to schools, which enrolled students of several ethnic groups in nearly equal proportions. At the secondary-school level, we also included a vocational high school, since vocational schools were included among the Case Study schools visited in Japan and Germany. In the two secondary sites, we selected one elementary, one junior or middle school, and one senior high school.

Descriptions of Schools

The following descriptions of the schools selected for this study are based on field notes and written materials provided by schools, school districts, and state reports.

Metro City Area Elementary Schools

Rockefeller Elementary School is located in Lakeside, one of the most affluent neighborhoods in Metro City. Surrounding the school are large homes with spacious, well-manicured lawns. Per capita income in Lakeside is more than double the national average. The school was well maintained and well equipped with an impressive library, creative and imaginative play spaces, and computers with educational software and video games for student use. Spending per student was much higher than the state average, as are teacher salaries.

On statewide tests, students at Rockefeller scored well above average in math and science. The school population was 93 percent white, 6 percent Asian, and 1 percent Hispanic. Children of Japanese parents on assignment in the United States made up the largest minority group. Less than 1 percent of the students were of limited English-language proficiency, and none were from families classified as low income. The student mobility rate, the number of students who enroll in or leave a school within a given year, was less than 6 percent.

Midtown Elementary School is located in a moderate to low-income suburb of Metro City. The school is adjacent to a congested roadway; across the street is an old strip mall with a restaurant, a dry cleaner, and other small businesses. Just to the east of Midtown Elementary is a factory.

Midtown Elementary students scored at about average levels of achievement in science and math on statewide assessment tests. Only 2 percent of 3rd-grade students did not meet state goals in math achievement; but 20 percent of 4th-graders did not meet state goals in science. The school had a diverse student body. Just over half of the students were white, about 30 percent were African-American and about 10 percent were Hispanic. Over 90 percent of the teachers at Midtown were white. One-fifth of the students were from low-income families, defined as those receiving public aid, living in institutions for neglected or delinquent children, supported in foster homes with public funds, or eligible for free or reduced-price lunches. Just under 10 percent of the student body was of limited English proficiency. The annual student mobility rate was about 20 percent. Spending per pupil was below average for the state.

Parks Elementary School is located in an inner-city neighborhood of Metro City. There is a large cemetery on the north end of the school. The building is comparatively small and the playground is a fenced-in parking lot. Surrounding the school are row houses. Nearby are major city streets and a large variety of storefront shops, many with iron gates to prevent robbery and vandalism.

Students at Park performed below average on statewide tests of achievement. The student population was 40 percent Hispanic, 30 percent African-American, 14 percent Asian, and 14 percent white. Over 90 percent of Parks's students came from low-income families. A third were of limited English-language proficiency. The student mobility rate exceeded 50 percent.

Metro City Area Junior High/Middle Schools

Vanderbilt Middle School is located in the affluent community of Rolling Hills near Metro City. Expansive lawns and large homes dominate the area around the school. The school is exceptionally well maintained and has recently been professionally landscaped. The average home in the area costs approximately half a million dollars, providing property values that create a rich tax base for the school. Per-pupil expenditures in the district are nearly double the state average and teacher salaries are also relatively high.

Students at Vanderbilt Middle School scored well above average in math and science. More than 95 percent of the students at Vanderbilt were white. The largest minority population is Asian Americans, who comprised about 3 percent of the student body. Student mobility rates were below 5 percent. Around 2 percent of the students came from low-income families, and about 1 percent was of limited English-language proficiency.

King Junior High School is located in a moderate to low-income community near Metro City. Although the school is located near congested retail areas, the school itself is somewhat insulated by a well-kept working class, older neighborhood. The area is one of the more integrated neighborhoods in the city. About 60 percent of the students at King were white, a third were African-American, 3 percent were Hispanic, and another 3 percent were Asian or Pacific Islander. Only about 5 percent of the students came from low-income families, and less than 1 percent were of limited English-language proficiency.

Overall, test scores for students at King indicated performance in the middle range for the state. The student mobility rate was just under 5 percent. Spending per pupil exceeded the state average by a small amount. Teachers salaries in the district also exceeded the state average.

Metropolitan School is located in a poor inner-city neighborhood that serves as one of the major ports of entry for immigrants to the United States. Local housing consists entirely of multiple-family dwellings. The school is an old fenced-in, three-story building, with an asphalt lot for a playground. A surge in the neighborhood population had created severe overcrowding in the school, and auditoriums and gymnasiums had been converted to classroom use. A recent solution to the problem has been the move to a year-round calendar, with one-quarter of the students out for vacation at a time.

Student scores on math and science achievement indicated performance that is below average for the state. Almost two-thirds of the students were African-American and just under one-third were Hispanics. Fewer than 5 percent were white. Over 90 percent of the students came from low-income families, and 1 in 5 students were of limited English-language proficiency. The student mobility rate was over 80 percent.

Metro City Area Senior High Schools

Hamilton Township High School is located in a community adjacent to Metro City. The campus covers 60 acres, the size of a small college. Built for a population twice the current size, the school includes huge athletic fields, six gymnasiums, extensive computer rooms with the newest equipment, a vast library, an auto body shop, a printing room for the school newspaper, woodworking shops, fully equipped chemistry laboratories, and a day care center.

Students at Hamilton scored above average on math and science tests. The student body reflected the composite racial distribution of the neighborhoods it served, with almost identical proportions of whites and African-Americans, about 45 percent each, with the remaining 10 percent made up largely of Hispanics and Asian Americans. About 30 percent of the students were from low-income families, and under 10 percent of the students were of limited English-language proficiency. The student mobility rate was 12 percent. The graduation rate was almost 90 percent.

Springdale High School is located in an older middle-class neighborhood in a suburb bordering Metro City. The foursquare block campus sits among well-kept middle-class homes. The school has three computer labs for student use, nine gyms, two pools, and three theaters.

Students from the school scored above average in statewide tests of both math and science proficiency. About two-thirds of the students at Springdale High School were white. African-Americans comprised over one-quarter of the student body. The community prided itself on being racially integrated. Less than 10 percent of the students were from low-income families. About 1 percent of the students had limited English-language proficiency. The student mobility rate was 14 percent. The graduation rate was nearly 85 percent.

Uptown High School is a large urban school located in the heart of the city and surrounded by small shops and old brick apartment buildings. The turn-of-the-century building, which has experienced considerable wear, has an imposing classical entrance. However, this entrance was closed, because all students had to be funneled through one narrow side entrance in order to pass through security guards and metal detectors.

Students at Uptown scored well below average in state tests of math and science achievement. The majority of students failed to meet state goals in math and science; furthermore, 19 of 20 students at Uptown failed to meet state standards of writing. About 40 percent of the students were African-American, 30 percent Hispanic, 20 percent Asian American, and 10 percent white. Nearly four of every five students were from low-income families and nearly a third were limited English proficiency. Student mobility rates at the school were approximately 30 percent. The graduation rate at Uptown was less than 50 percent.

South Central Vocational High School, a 100-year-old school surrounded by an iron fence, is located in the inner city in a neighborhood of abandoned buildings, empty lots, and several large housing projects. To maintain security there was only one open entrance through heavy steel doors, where everyone entering had to pass through metal detectors. Some 20 surveillance cameras assisted the principal, teachers, and security staff in monitoring the halls. The hallways were lined with damaged lockers, the limited computer equipment was obsolete, broken basketball rims dangled from their posts, litter was strewn around the old oak running track, and throughout the school the paint was chipped and peeling.

South Central students were among the lowest scorers in the state on tests of math and science achievement, and the average entering student reads at the elementary school level. Over 90 percent of the students were African-Americans. About 7 percent were white, and there were small numbers of Hispanics and Asian Americans. According to the principal, most of the students came from three Metro City area housing projects, although the school accepted students from a wide geographical area. More than half of the students were from families certified as low income; some were homeless and lived on the street. Daily attendance was low, reported at 50 percent, although several teachers indicated that the figure might be closer to 25 percent. Only 20 percent of the students graduated.

West City Area Schools

West Elementary School is at the center of a low-income neighborhood, a community of small bungalows with gardens. The school is made up of long single-story, pink buildings with classrooms opening up to breezeways. The school playground is paved and the central play yard is brightly painted. Classrooms appear well stocked and personalized with colorful educational material and artwork. Students score below average on achievement tests administered statewide. The student population was about 75 percent Hispanic, 20 percent Asian, 3 percent African-American, and 1 percent white. Students with limited English proficiency made up 62 percent of the student body, and nearly 90 percent were from low-income families. The mobility rate is 33 percent.

West Middle School is located in a low-income section of West City, a neighborhood of small single-story homes with chain link fences and often with iron bars on the windows. The school, a single-story building of parallel wings opening onto breezeways, is dark, with little student work or school material on display. But community members have worked to built an attractive and modern activity center just behind the school and have planted new playing fields.

Students scored below average on achievement tests administered statewide. The school served a population that was 77 percent Hispanic, 17 percent Asian, 3 percent African-American, and 1 percent white. Sixty percent of the students had limited English proficiency, and 85 percent were from low-income families.

West High School is located in a low-income district of West City. The campus includes clusters of single-story buildings with low tile roofs, a central courtyard, terraces with grass and trees, an outdoor amphitheater, tennis courts, and sports fields. The diverse student body included 43 percent Hispanics, 38 percent Asians, 7 percent whites, and 5 percent African-Americans. Several other groups represented the remaining 7 percent.

Students at the school performed below state averages in both the mathematics and verbal sections of the state achievement test. Approximately 40 percent of the students were from low-income families, and 46 percent had limited English proficiency.

East City Area Schools

East Elementary School is an old two-story brick building, surrounded by large oak trees, and nestled into a suburban community of East City. One of the magnet schools in the district, East Elementary School provided a full-day program that included after-school care for students. According to the results of statewide tests, students at East Elementary scored at about the state average in math and science. The student population was ethnically mixed: 53 percent were white, and 42 percent were African-American. The percentage of students eligible for a free lunch was 25 percent.

East Middle School is an immense, modern school built within the last 5 years. It is located amid rolling hills and horse farms that is rapidly being transformed into a suburban community of new housing subdivisions. Because it is a year-round school, students attend 45 days, then have 15 days off, so that at any one time three-quarters of the students are in school and one-quarter are on break. Student achievement in math and science was average for the state. Close to 90 percent of the students were white and less than 10 percent are African-American. Seven percent of the students were eligible for free lunches.

East High School, built about 20 years ago, is a large split-level structure on the east side of town, serving a district that was created to ensure racial and socio-economic balance. The school is overcrowded and seven trailers served as supplementary classrooms. The school includes a large gymnasium, multiple athletic fields, a football stadium, and a child-care center. Computer access is provided in all curriculum areas, and the school was one of two in the county to offer English as a Second Language program.

Student scores on math and science tests were in the middle range for the state. White students made up 62 percent of the student body, and 38 percent were African-American. Fourteen percent of the students were eligible for free lunches.

Organization of the Volume

National Standards

This chapter explores the issue of standards for students' academic performance in the United States. Recent national-level initiatives are reviewed, and perceptions and attitudes of teacher and parents are described. Similarly, state and local initiatives are profiled. The chapter also describes curriculum development and implementation, assessment issues, and the factors that influence academic achievement, including the learning environment and parental expectations and involvement. Implications of academic standards for the transition after high school are also discussed.

Individual Differences

The second chapter focuses on individual differences in academic achievement, how they are perceived within the United States, and how the schools address them. Practices in ability grouping and tracking are described, along with the implications for gender equity in math and science, and the impact of these practices for various racial and ethnic groups. The chapter also provides information on the education of those who are learning disabled, severely handicapped, and those considered gifted.

The Role of School in Adolescents' Lives

This chapter focuses on the role that school plays in the lives of adolescents in the United States This begins with a section on how adolescents use their time, with descriptions of the school day, extracurricular and after-school activities, homework, time with family, leisure, social lives, and employment. Students were also interviewed about their perceptions of schooling and education. The chapter includes broader issues of adolescent concerns, such as academic pressure, relationships, safety issues, drug use, sexuality, and family problems. The multiple influences on adolescents' lives are explored, as is the transition to adulthood and students' views of the future.

Teacher Preparation and Teachers' Lives

This chapter looks at the conditions that influence the effectiveness of teachers. The first section describes two aspects of teacher's lives that were of special interest: the personal characteristics of teachers, and teacher training and professional development, including student teaching, past and current efforts at professional development, salaries, benefits, and union involvement. The second section discusses working conditions in terms of physical environments, cultures of expectations, sources of instructional support, and locus of instructional decisionmaking and planning.

These chapters provide an overview of four important facets of the United States education system and offer descriptive information from the sites where we observed and interviewed.

Chapter 2

The Development and Implementation of Education Standards in the United States

By: Roberta Nerison-Low and Mark Ashwill

> When you get on an airplane, you want a pilot who has been held to the highest standards of flight training. When you need an operation, you want a surgeon who has been held to the highest standards of medical education. And when you root for American athletes in the Olympics, you know they won't win the gold unless they have trained to meet the highest standards of international comparison.
>
> In many areas of our life, we expect—and demand—high standards. We know their great value. They help bring out the best in us. When we do not hold all students to high academic standards, the result can be low achievement and the tragedy of children leaving school without ever having been challenged to fulfill their potential.
>
> But a historic change is now taking place in American education: the development of voluntary national standards that will clearly identify what all students should know and be able to do to live and work in the 21st century. These standards will be designed to be internationally competitive.
>
> "High Standards for All Students," (U.S. Department of Education brochure 1994)

Introduction

The federal government does not determine what students should know and be able to do in any subject at any level of schooling. Rather, the implementations of standards for students' performance have been left to state and local authorities. Within the United States, there are 16,000 school districts, each of which is administered and financed by a local community, and 50 state departments of education. In fact, local control has been the defining characteristic of American education since the construction of the first one-room schoolhouse. As a result, the level of standards of schools tends to reflect the socioeconomic status of the communities in which they are located: the wealthier the community, the higher the expectations and the higher the academic standards.

The impetus for the general movement towards higher standards in the area of education can be traced to the increasing importance in the American economy of information as opposed to industry. This movement has created the need for a work force with higher-level skills and knowledge than in the past. The perception that this need is not being met has resulted in persistent and severe criticism of the quality of America's public schools and dismay about international comparisons that consistently rank American students at or near the bottom in academic achievement. Added to these criticisms is the allegation that schools are partly to blame for the steady erosion of the United States' position as the world's preeminent economic superpower. (*A Nation at Risk* 1983) All of these require, the critics maintain, that academic standards be raised.

One of the driving forces behind the movement for higher standards, as mentioned, is the poor performance of American students on international studies of academic achievement compared to their peers in other industrialized countries. In a 1991 International Assessment of Educational Progress, 13-year-olds in the United States ranked near the bottom of the list with an average of 55 percent and 67 percent correct answers on the math and science assessments. Only two countries in the comparisons turned in worse performances, while a wide variety of countries scored significantly better. For example, 13-year-olds in Hungary, Korea, the former Soviet Union, and Switzerland posted average scores ranging from 70-78 percent. Germany and Japan were not represented in this survey, but results of the Second International Math and Science Study put students from both Germany and Japan well ahead of U.S. students in both science and math.

These international comparisons and pressure from the business sector in the United States have focused attention on ways in which public education can be improved. As a result, the discussion of standards for learning and teaching has grown in magnitude in the United States in recent years as policymakers, legislators, educators, parents, and community leaders have all grown increasingly concerned with students' achievement levels.

The word "standards" has been used in many ways during these often-heated public discussions. Sometimes the word "standards" has been used to represent established levels of achievement; in other instances it has been used to refer to commonly shared sets of academic subject content, such as those embodied in state curriculum guidelines.

To understand the influence of standards in the United States we cannot restrict ourselves to a discussion of formalized rules and regulations governing the education system, although national goals and state regulations and guidelines will be discussed in this chapter. These guides to standards have developed significantly in recent years, and school districts have felt their influence. Curriculum guidelines in particular have been used to set standards in many states and have been linked to state-administered achievement tests. However, any discussion of standards in the United States must also include a description of the more informal mechanisms by which schools maintain and promote desired levels of achievement. Achievement levels for schools and for students have traditionally been set by community expectations, and communities continue to influence curriculum and instructional decisions made at the school level. Standards, therefore, are also a result of local decisions, such as those governing the selection of textbooks and those affecting a school's policy on the promotion or retention of students. These mechanisms for establishing standards will also be discussed.

Methodology

Before conducting the field research on which this chapter is based, we identified four areas of investigation that guided our data collection on the topic of standards. First, we were interested in the influence of standards on student motivation and achievement. Second, we were interested in the development and implementation of academic curricula. Factors influencing implementation such as textbooks, the use of technology, homework, and teacher knowledge and acceptance were all investigated. Another element of the standards research was the investigation of monitoring mechanisms, such as in-class exams and state and national assessment exams. In addition, we were interested in the role of standards in the preparation of students for postsecondary education. And, last, we were interested in the attitudes of parents, teachers, administrators, and students about the usefulness and effectiveness of establishing national standards, particularly in mathematics and science.

Research for this chapter was conducted over a 2-month period in Metro City and over a 3- to 4-week period in East and West City. All project schools in each of these locations were included in research for this chapter.

Mark Ashwill conducted all of the interviews and observations in Metro City that pertained to the topic of standards, except for a few interviews that were conducted in Spanish by a bilingual research assistant and a few interviews conducted with African-American students and parents. Mavis Sanders conducted the interviews with African-American respondents, and Carmen Johnson de Maldonado conducted the Spanish interviews.

Gerald LeTendre and Sally Lubeck collected all of the interview and observation data relevant to the topic of standards during their visits to schools in East City. William Foraker and Carmen Johnson de Maldonado collected the interview and observation data on standards in West City schools. All of the information from these secondary sites was later shared with the authors, and these data were included in the analysis and reflected in this paper.

In pursuit of information on standards in the United States, Ashwill and his research colleagues conducted 30 interviews at academic high schools, 10 at vocational high schools, 31 at middle schools, and 28 at elementary schools. Of all the interviews on this topic, approximately 12 were held in East City, 24 in West City, and 63 in Metro City. In addition, approximately 38 classroom and general observations were included in the data analysis. Printed information obtained from schools, career counseling centers, school districts, state departments of education, and the National Center for Education Statistics was also integrated into research findings in this chapter.

Most of the schools we visited were very welcoming and accommodated our visits to the best of their ability. Two schools in Metro City were difficult to visit, although for very different reasons. One elementary school seemed to lack the organizational structure to assist in arranging teacher and student interviews. A middle school also turned out to be somewhat difficult to work in, because the parents closely monitored research requests for the reason that they felt the research might interfere with the education of their children. The principal at this school was very aware of this oversight by the community and placed greater structure on our visits than we would have wished. Despite these difficulties, we were able to collect data and conduct observations at both of these schools. We found the principals and teachers at all of the schools we visited to be very open and willing to share their views and experiences with us.

Interviews with teachers and administrators took place in the schools, as did the majority of the parent and student interviews. Interviews with students were generally arranged either through the principal, assistant principal, or classroom teacher. A few of the interviews with students were conducted as group interviews, and we found most students open to being interviewed. Parent interviews were mostly conducted with mothers who were involved with the school in some way and therefore known to the principal; others were volunteers.

Although we felt we were able to obtain candid information from the individuals with whom we spoke, we realize that the principals' involvement in assigning respondents to us may have reduced our ability to interact with individuals who were disenchanted with or disengaged from school. We believe that it is likely our sample includes primarily students of average or slightly above average ability. Teachers were often selected on the basis of availability on the particular day of our visit. In most cases, interviews were conducted with teachers whose classrooms we observed.

National-Level Initiatives

National Education Goals

At an education summit held in 1989, President Bush and the 50 state governors agreed upon 6 national education goals for the United States to achieve by the year 2000. In 1994, two more goals were added, and Congress codified the National Education Goals.

The goals, created as a framework for improving student achievement, refocus the objectives of education, while leaving specific tactics to state and local governments and to schools. They function, in part, as a general set of standards toward which all Americans should strive.

The National Educational Goals state that by the year 2000:

1. All children in the United States will start school ready to learn.
2. The high school graduation rate will increase to at least 90 percent.
3. U.S. students will leave grades 4, 8, and 12 having demonstrated competency in challenging subject matters, including English, mathematics, science, foreign languages, civics and government, economics, arts, history, and geography; and every school will ensure that all students learn to use their minds well, so they may be prepared for responsible citizenship, further learning, and productive employment in our Nation's modern economy.
4. The Nation's teaching force will have access to programs for the continued improvement of their professional skills and the opportunity to acquire the knowledge and skills needed to instruct and prepare all students for the next century.
5. U.S. students will be first in the world in mathematics and science achievement.
6. Every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and to exercise the rights and responsibilities of citizenship.

7. Every school in the United States will be free of drugs, violence, and the unauthorized presence of firearms and alcohol and will offer a disciplined environment conducive to learning.
8. Every school will promote partnerships that will increase parental involvement and participation in promoting the social, emotional, and academic growth of children.

According to the U.S. Department of Education, the national goals have received public support because they "reflect the maturation of a still-growing political consensus that American schools must establish clear standards of performance to which all students will be held" (U.S. Department of Education [USDE] 1990). In fact, the 1990 and 1991 Gallop Polls found that over 75 percent of Americans surveyed attached "very high" or "high" priority to the 6 goals that had been proposed by the time of the survey (USDE 1990).The goal toward which the general public feels the least amount of progress has been made targets achievement in science and mathematics (USDE 1993). The U.S. Department of Education has laid out three objectives related to this goal:

- strengthen mathematics and science education throughout the system, especially in the early grades;
- increase the number of teachers with a substantive background in mathematics and science by 50 percent; and
- significantly increase the number of U.S. undergraduate and graduate students, especially women and minorities, who complete degrees in mathematics, science, and engineering (USDE 1990).

The Goals 2000: Educate America Act, which codified the goals, established federal support for voluntary, state-based systemic reform that includes the development and implementation of high academic standards. The legislation calls for state plans to include the development and implementation of content standards in core subjects, student assessments linked through performance standards, and opportunity-to-learn standards or strategies. The legislation also provides funding to states to support systematic state reform based on state-developed plans. (Council of Chief State School Officers 1995)

Also as a part of this legislation, Congress established the Goals Panel as an independent federal agency. The 18-member bipartisan Panel consists of 8 Governors, 4 members of Congress, 4 State Legislators, the Secretary of U.S. Department of Education, and the Assistant to the President for Domestic Policy. (The National Education Goals Panel 1994)

The Goals Panel is responsible for: monitoring and reporting progress towards the goals; building a national consensus for the reforms necessary to achieve education improvement; reporting on promising or effective actions being taken at the national, state, and local levels to achieve the goals; identifying actions that federal, state, and local governments should take to enhance progress towards achieving the goals and to provide all students with fair opportunity to learn; and collaborating with the newly-created National Education Standards and Improvement Council to review the criteria for voluntary content, performance, and opportunity-to-learn standards. (The National Education Goals 1994)

The national goals have produced a dialogue among legislators, educators, and school board members throughout the United States that is focused on improving education standards for all students in U.S. schools. This dialogue and the directives and funding embodied in the Goals 2000: Educate America Act have led nearly every state to design and implement curriculum frameworks or guidelines, and many have developed or are in the process of developing assessment instruments to monitor the schools' progress towards higher standards.

National Standards

Despite favorable public opinion polls concerning national goals in education, the public has remained divided on the need for formally defined national standards. Proponents of national standards have raised several arguments supporting the need for developing such an explicit national standard (National Council on Education Standards and Testing [NCEST] 1992). These persons argue that formulating national standards will encourage the states to raise their own standards and that by giving students a common set of goals, the quality of our schools may improve, leading to greater equality between advantaged and disadvantaged school districts. Moreover, standards for the nation would allow our diverse population to share expectations and learning opportunities by coordinating efforts and pooling resources and ideas.

On the other hand, many objections have been advanced to national standards (NCEST 1992). Some argue that establishing national standards will detract from many positive local reforms and inhibit the development of initiatives at the state and local levels. Others worry about the effects of such standards, fearing that they will result in minimum standards that will drag down the entire system and ignore our most capable students. Some educators also worry that national standards would lead to a national curriculum, with the federal government imposing standards in a top-down fashion. Still others view them as unnecessary, since they believe that standards without resources and strategies will be of no help to school systems.

Despite the debate, the general consensus has been moving toward establishing some form of national standards for education. For example, data from a national sample of citizens in 1991 revealed that 68 percent of Americans favor developing a voluntary national test that would measure and compare abilities of students by school districts across the country (Gallup 1991).

Voluntary national standards. Thus far, efforts to construct national standards for what should be taught in each of the major subject areas have resulted in voluntary national standards for mathematics, science, and history. Those for other subjects are also under development. Funding for the development of voluntary national standards has come from a variety of sources, including the U.S. Department of Education and an assortment of nongovernmental organizations.

In 1989, the National Council of Teachers of Mathematics (NCTM) published curriculum standards outlining the mathematics that should be incorporated into school programs in order that they be considered of the best quality, as well as the instructional conditions needed for students to learn mathematics. These guidelines did not originate with the U.S. Department of Education but rather stemmed from the recommendations of many different experts and experienced teachers of mathematics. Consequently, the guidelines are not promulgated by a governmental agency, and there is no means to ensure uniform acceptance or enforce their implementation across the United States. Instead, adoption and implementation in individual states, districts, and schools is voluntary.

Nevertheless, the adoption of the NCTM standards has been widespread; over 80 percent of the states have modified their mathematics framework so that they are in line with the NCTM standards. Moreover, numerous professional and administrative agencies are using them as a model for their own standards (Shriner, Kim, & Ysseldyke 1993).

The National Science Education Standards were published in 1995. This document sets standards for science teaching, professional development for teachers of science, assessment in science education, content of science, science education programs, and science education systems (National Academy of Sciences 1995). These standards will be used to guide the development of science education in elementary and secondary schools. However, like the mathematics standards, they serve as general guidelines rather than enforced requirements, and their implementation will be dependent on acceptance at the state, district, or school level.

Voluntary history standards were released in the spring of 1996. These standards, released by UCLA's National Center for History in the Schools, encompass voluntary standards for teaching history from kindergarten through 12th grade. A press release announcing the appearance of the national history standards states that they "were created in cooperation with 33 national education organizations and more than 1,000 educators from all regions of the country" (World Wide Web April 3, 1996). As with standards projects in math and science, the goal of the history standards is to serve as a benchmark to guide teachers and school districts in the development of curriculum.

As already mentioned, voluntary national standards in the arts, geography, civics and government, English language arts, and foreign languages are currently in various stages of development.

Teachers' Attitudes Towards National Standards

Teachers' attitudes towards voluntary standards such as the NCTM standards were generally positive. Many teachers who were interviewed for this study said that they worked to incorporate NCTM standards into their curriculum or knew that the textbooks they were using incorporated NCTM standards. This was true of teachers at all levels—elementary, middle school, and high school. However, there were noticeable differences in teacher responses between schools of different achievement levels. In schools where the majority of the student population struggled to meet state-assessed achievement standards, the role of NCTM standards was often a subject for debate. In the case of Parks Elementary School, parents who were actively involved in-school management were pushing teachers to incorporate NCTM standards in their curriculum. However, teachers resented the parent council pushing for change, seeing it as a vote of no confidence in their current teaching practices. An internal document at Parks Elementary School spoke of the need for more communication in order for NCTM standards to be successfully adopted: "Design Team members are the emissaries for the initiative—they need to work not only on promoting discussion about the objectives, but also promoting enthusiasm for the process so we can overcome the resistance that naturally comes from change."

At South Central, the high school with the lower-achieving students, teachers said that standards of any kind were barely relevant, since they were faced with teaching students who came into their school seriously below grade level. Much of the instruction at South Central was remedial in nature. Rather than debating the merits of national standards, teachers and administrators were more concerned with finding ways to "catch" students in the hopes of educating them, meeting the minimal state standards, and ensuring students' figurative and literal survival through the 12th grade and graduation. An exception to the resentment expressed toward national standards at these two low-achieving schools in Metro City was found among the principals and teachers at Metropolitan School. Teachers interviewed at Metropolitan, also a low-achieving school, generally supported the notion of national standards in math and science. One teacher remembered that when she had begun teaching 25 years earlier, she was not given any standards with which to work. She contrasted that experience with her current situation, which offers more assistance in the form of guides to help organize teachers and schools, the state assessment test, a curriculum based on state goals, and textbooks which adhere to those goals.

A principal at Midtown Elementary school had mixed feelings about the reality of national standards: "I support national standards as a way of getting away from discrimination or allowing educators to make excuses because 'my kid's this or that'. Standards would spell out what children have to learn. But what would happen to kids who don't make it? Keep failing them until they meet the standards? Who will pay for the extra programs to help these kids? Funding from the federal government is a joke; state aid is shrinking."

Although teachers at Rockefeller Elementary do not use textbooks extensively, their math curriculum is based on NCTM standards. In fact, one teacher we spoke with served as a member of the math study group, which redrafted the K-8 math curriculum over the summer. She said that the motivation to redraft the math curriculum came from "dissatisfaction with state standards and Rockefeller's own past standards and the desire to align the curriculum with current national standards in math." The consensus view was that, if the school was meeting the NCTM standards, then state standards would also be met.

Similarly at Central Middle School, a teacher we spoke with had worked with another Central colleague to rewrite the math curriculum in order to update it with NCTM standards and to put "more meat into it." She reported that there is now a lot of emphasis on problem solving, algebra, and practical problems related to real-life situations, and estimating. She characterized the old way of teaching math as boring, saying the kids found it "a snooze couple of years" and that the "kids are eating up" the new curriculum.

Members of the math department at Hamilton High School also stated that they used the NCTM standards to guide their courses. Both the department (teachers) and the school administration agreed on the need to incorporate these standards into the curriculum. One of their first goals was to have more statistics taught in math courses. A summer project resulted in 200 pages of ideas about how statistics could be used in different courses.

Parents' Attitudes Towards National Standards

Generally, parents were supportive of national standards for education, although some also voiced some wariness. One parent, in particular, said that national standards may "reduce it all to the lowest common denominator." However, other parents suggested that standards could be used as a mechanism for accountability. Several parents spoke of the potential equalizing effect of national standards. One said, "they would bring the lower schools up and make sure that everyone is at the same place." She mentioned the child of a friend who had moved. Her fourth-grade son was bored at his new school because he had already covered the curriculum at his previous school. Another parent spoke of national standards in this way:

> They have to be there, especially for the inner city. Lakeside's schools would be fine, we would push them anyway. Not everyone is highly motivated to perhaps take that difficult child and bring him to a certain level. Those situations need national standards. They have to be sure that they're met. We need standards so that children are not cheated because of their environment. (Parent, Rockefeller Elementary)

As evidenced by the above statements, positive support for national standards among parents was fairly uniform from the lowest to the highest-achieving schools. Parents of the school council at the lowest achieving elementary school were the driving force behind the integration of NCTM standards into the school's math curriculum. Parents of students enrolled in high-achieving schools were also actively involved at the elementary level and were well aware that their school's curriculum and instruction were in line with the highest standards.

State-Level Initiatives

States have developed various different initiatives to help their schools meet the National Education Goals. Most states have formulated curriculum frameworks or guidelines that assist schools and school districts in providing students with common academic standards. Although the format and content of these guidelines vary, most states have developed separate guidelines by grade level for what are considered the four core academic subjects: English, math, science, and social studies (American Federation of Teachers [AFT] 1996). Other state-level reform initiatives have focused on teachers. Some state governments have passed legislation to change requirements for teacher education, believing that the improvement and advancement of teachers will be accomplished through changes in licensing and promotion requirements. Yet other proposals have led to the creation in some states of inservice staff development programs and accountability systems.

We found that the three states in which our research sites were located had each developed an extensive set of academic goals and frameworks to guide the districts and schools within their state.

The state education department for the state in which our primary research site (Metro City) was located established a set of goals for the schools in their state in the mid-1970. However a new set of goals was adopted in the early 1990's in an effort to "reflect changes in the larger society and shape the education of our children for life in the 21st century." Eight basic goals were identified. In addition, these goals were explicitly linked to the national goals. The state goals reflect both "a vision for the state's education system and the nature of support which will be necessary for that responsibility to be successfully met." They include general policy statements such as: "All people of this state will be literate, lifelong learners who are knowledgeable about the rights and responsibilities of citizenship and able to contribute to the social and economic well-being of our diverse, global society" and "Each child in our state will attend a school that is supported by an adequate, equitable, stable and predictable system of finance."

In a separate initiative, the state has also laid out Goals for Learning in specific subject areas. These goals outline expectations for "what students should at least know and be able to do upon completing secondary schooling." The subject areas include: language arts, mathematics, biological and physical sciences, social sciences, fine arts, and physical development and health. However, the Goals for Learning are not broken down by grade level. Instead, the state has developed "learning objectives" to show how the goals could apply to various grade levels. They are in the process of revising the state goals and developing academic standards in the four core subjects to clarify the expectations under each goal. The state assessment is linked to the "broad" goals but not to the learning objectives. Reading, writing, and math assessments are given to all students in grades 3, 6, 8, and 10, and science and social studies are assessed in grades 4, 7, and 11. The state assessment is not currently used to determine a student's eligibility to graduate, nor is a differentiated diploma system tied to the assessment (AFT 1996).

The western state included as the location for one of our secondary research sites has actively pursued additional funding from the federal government to support reform efforts which would update their schools along the efforts outlined in the Goals 2000: Educate America Act. In addition, this state began developing a set of curriculum frameworks in 1995. They currently exist as interim drafts and are still undergoing revision, but have been distributed to school superintendents and are available to the public. The implementation of the standards represented in these curriculum frameworks is voluntary. Literature from the state's department of education describes the curriculum frameworks in the following way: "The frameworks are visionary documents that describe the knowledge and skills that students must obtain as they prepare for participation in a democracy and the work force as well as for lifelong learning." These curriculum frameworks were developed by committees of national, state, and local curriculum experts and practitioners under the direction of a division of a state commission.

The goals of the framework state: "They provide the basis for the development of criteria for evaluating and selecting instructional materials, serve as guidelines for staff development, and provide the impetus for the development and revision of state and local student assessment programs." The curriculum frameworks have been constructed for each of the core subject areas with content descriptions specific to each grade or course. In addition to the curriculum frameworks, a set of standards have been drafted for each of the core subjects. These standards are designed to complement the curriculum frameworks and are available to districts to use on a voluntary basis. The state currently has no statewide assessment system, although a new assessment system is under development. High school students may take an optional exam that tests students on algebra, geometry, economics, biology, chemistry, and coordinated sciences. The exams content is linked to expectations listed in the curriculum frameworks. Those who take the exam and achieve high scores receive special recognition on their diplomas and transcripts (AFT 1996).

State initiatives have also guided reform at our secondary site, known here as East City. The state board of education of this state has developed a plan to "restore confidence in our public schools." The three principles of this plan are: (a) local schools, rather than the school system, will be held accountable for the success of their students, (b) attention will be focused on teaching reading, writing, and mathematics, and (c) individual schools and surrounding communities will be given more authority to choose how their schools are operated, as long as their students are successful. In addition, the state has developed standard courses of study in several core subjects, which are meant to guarantee that all students have access to equal education.

Documents describing the courses of study state: although it does not prescribe how schools should organize themselves or how teachers should instruct, it sets standards against which the schools and teachers may judge their success. Some of the courses of study are written to provide content standards for specific grades, others provide lists of concepts and skills but no indication of the grade level at which they should be taught. The state's department of education says that local control over curricular units is best left to local school districts, schools and classroom teachers. They see it as their "responsibility to set quality curriculum and performance standards and to develop models of integration which link curriculum, instruction, and assessment." The state assessments are linked to the standards, and the state requires districts to take individual student scores on the state assessment into account when making grade promotion decisions. Reading and math assessments are given to all students in grades three through eight, and writing is assessed in grades four and seven. It is up to local districts to assess students in other core areas. High school students are given end-of-course exams in English I and II, biology, algebra, U.S. history, and civics. In addition, beginning in eighth grade, students are given a competency test for reading and math, which they must pass to graduate from high school. Those who do not pass the test in 8th grade take it again in 10th grade and are given multiple chances to pass it through the 12th grade (AFT 1996).

The goals and the curriculum guidelines, or courses of study, developed by these three states share some commonalities, despite their independent origins. Two explicitly cite Goals 2000 as a driving force behind their own initiative or as the model to which their initiative is compared. Also, the inclusion of technology, the development of thinking and reasoning skills, cooperative learning, curriculum integration, and the alignment of curriculum and assessment are concepts that are cited in most of the states' initiatives. It is also clear in these initiatives that there is a commitment to school-based management within all three states. The states see themselves as capable of providing guidance and encouraging districts to return decisionmaking to schools and to classrooms for the implementation of standards based on local needs. In West City, for instance, districts were given grants from the state level to do school-level restructuring. A teacher from West City stated the philosophy behind these grants: "A community school, that is the ideal school."

Attitudes Towards State-Level Initiatives

At the primary research site, Metro City, most discussions of state standards revolved around the state assessment test. Curriculum goals themselves were usually mentioned only in the context of discussions about textbooks. Generally, teachers at the high-achieving schools felt that the state standards were not relevant to their students, since the majority of their students demonstrated that they were well above the state mean on the state assessment test. However, teachers at schools where the majority of the student population scored below the mean on the state assessment said that they felt pressure to choose textbooks based upon the state's curriculum guidelines.

Teachers and principals in East City also spoke of the state's standardized exams, but teachers in both East and West City cited ways in which the state curriculum or curricular framework was implemented in the schools. A teacher in West City, for instance, said, "he was confident in the state's curricular framework, but also that the districts were allowed to figure out how to modify the curriculum to meet the needs of the local population." In East City, math teachers noted that the state curriculum requires that they cover certain topics and allow students to use calculators for topics such as fractions.

District- and Local-Level Initiatives

Initiatives which will help schools reach the national goals have also been developed at the local level. These programs are often generated by local school boards and administrators, specifically for their school or district. Innovative programs may serve as models for other schools and districts, but there is often no system for sharing information about these programs with other schools or districts, or both. Yet, local initiatives are a very common means of adopting standards and goals in U.S. schools because of the deeply rooted value of local autonomy within the education system.

Attitudes Towards District- and School-Based Initiatives

District- and school-based initiatives were cited by parents, teachers, and administrators more frequently than either state or national initiatives. Although the initiatives varied greatly in scope, they generally had the support of parents and teachers, because they were perceived as having been created in response to local needs. In addition, many teachers spoke of the linkage of district and school initiatives to city, state, and even national standards, such as Goals 2000 and the NCTM standards.

Metropolitan School is an innovative school located in the inner city and surrounded by housing projects in Metro City. Approximately 4 years ago, the school redesigned its calendar in response to an ever-growing school population. Instead of turning students away and sending them to a school further from their homes, administrators designed a rotating school calendar based on a 12-month school year and split the student population into four schools within the school. In addition, they adopted an accelerated program for students performing at or above grade level.

Teachers at some of the other high schools and middle schools in Metro City also spoke of recent school initiatives. In particular, they mentioned efforts to have middle school and high school teacher's work together to facilitate continuity of the middle schools' and high schools' curricula.

Another school-based initiative mentioned in Metro City was a program in one of the more affluent school districts. The program was set up to encourage teachers to gain facility in the use of computers. The district was offering interest-free loans for teachers to purchase their own computer and software. The district also offered computer courses and promised to subtract a certain amount from the loan in exchange for every 2.5 hours of classroom training the teachers received.

At yet another school, members of the parent council participated in a citywide curriculum resource committee and brought ideas and materials from this committee back to school administrators and teachers.

Educators in West City said that the development and implementation of school-based initiatives was often dependent on the school's leadership. Generally it was the principal's responsibility to provide opportunities for staff development, although some workshops were also provided by the school districts. One example of a district initiative was the district's inservice training for elementary and middle-school teachers of math and science.

The elementary school we visited in East City provided children of working parents with extended day care. The normal school day is from 8:30 a.m. to 2:45 p.m. The enrichment programs were offered before and after school. Children participating in these programs could arrive as early as 7:00 a.m. and stay as late as 6:00 p.m. Another local initiative instituted in East City was the year-round calendar at the middle school. The school operated 9 weeks on followed by 3 weeks off throughout the year. Although the state restricted the ability of the school to require homework between terms, teachers could assign voluntary homework over the vacation periods to students who were falling behind their classmates. According to one teacher, "the school also encourages teachers to integrate the curriculum, and use hands-on student-centered learning, and cooperative or lab-oriented classes in math/algebra." Teachers within the school were organized into 12 instructional teams of 4 teachers each in core subjects.

Even as guidelines for state and national standards have increased in number and visibility in the last decade, there has been a concurrent emphasis on the return of decisionmaking powers to schools and teachers. Local and district efforts to improve the academic environment and raise achievement levels have, by their very nature, encouraged the development of a wide range of diverse programs.

Curriculum

Many factors contribute to decisions regarding the development and implementation of curriculum in schools in the United States. Some of these factors include whether the state or district (or both) have developed curriculum guidelines and whether the state and local guidelines are in accord with each other. Another possible factor is whether the state or district mandates that the schools follow these guidelines or allows them to develop their own curriculum. Additionally, schools that retain local autonomy over curricular decisions may choose either to adopt or ignore state or district guidelines. This choice is likely to be influenced by the school's history of achievement, community standards, financial resources, and its perception of these factors in relation to the curriculum guidelines being provided by the state or district. For example, principals and teachers at schools that consistently scored well above the mean on state assessment tests said that the state curriculum guidelines were not relevant to curriculum development in their school. They viewed the state curriculum guidelines as setting minimum achievement levels rather than a challenge or goal. On the other hand, we found that principals at schools where students were consistently performing below the mean on the state assessment test hoped to bring their school's curriculum into greater alignment with state guidelines. Meeting the state curriculum guidelines was a goal for these schools, and the mechanism by which they often chose to achieve it was through the use of textbooks that incorporated topic areas assessed by the state standardized assessment test.

We found that midlevel and low-achieving elementary schools, especially those in Metro City, explicitly chose textbooks that incorporated the recommended state curriculum. By contrast, teachers at Rockefeller Elementary developed their curriculum independently of a textbook series. A document describing the fourth-grade curriculum at Rockefeller Elementary for 1994–95 stated:

> This document outlines the goals of our present fourth-grade curriculum. Teachers actively partake in the ongoing evaluation and revision of curriculum and utilize various materials, programs, activities, and strategies to implement the following goals.

Another factor that influenced curriculum implementation in schools, primarily at the elementary and middle schools, was the number of students requiring bilingual education. Several of the schools we visited enrolled large populations of students who were not native speakers of English. These schools provided separate bilingual curriculum tracks for native Spanish-speaking students. According to one administrator, West City students generally stayed in the bilingual tracks for three or more years before making the transition to English language classes, and the curriculum provided within the bilingual track was the same as that provided to English-speaking students. The district administration for West City schools had also decided to provide resource teachers to assist bilingual classroom teachers with curriculum issues and to facilitate students transition from classes taught in Spanish to those taught in English.

Curriculum Levels Reflect Different Standards

Middle schools and high schools usually offered courses with varying levels of difficulty for core academic subjects, such as math and science. Curriculum content in these courses reflected different achievement expectations and, as a result, also reflected the diversity of a school's academic standards. Schools with the most highly stratified course offerings typically provided a very rigorous curriculum in their advanced-level courses.

Most of the middle schools we visited offered at least two levels of math/algebra, and some offered more than one level of science and language arts classes. Other schools offered three or more levels. Central Middle School in Metro City offered four levels of courses. According to one parent, "level three and four classes cover the same material as the lower levels but at a faster pace and with more demanding forms of assessment." Parents were eager for their children to take either level three or four classes so that they could continue into advanced-level math and science classes when they reached high school. In contrast, Metropolitan School offered courses at only two levels; those students who performed at or above grade level on standardized exams were offered the opportunity to participate in an advanced math and science track.

Courses selected at the middle school (or junior high) level affected students' choices of courses at the high school level, although teacher recommendations, parental requests, and standardized score results also influenced course options in high school. Most of the high schools offered courses at three levels of difficulty in math, science, and language arts (usually determined by the depth of material presented and the pace at which it was covered): advanced placement, honors courses, and general-level courses.

However, the availability of advanced placement and honors courses varied considerably from school to school. High schools such as Hamilton, Springdale, and East offered more advanced placement and honors courses than did the other schools. In contrast to this were the offerings at South Central Vocational High School and Uptown High School. At South Central, students had the choice between regular or vocational courses, a choice determined by an aptitude test, which each student took upon entry into the school. Two students we spoke to at South Central said they would like their school to offer honors courses because "in some classes people know everything, class becomes boring, and grades get worse since students stop listening." The course offerings at Uptown were better than at South Central, but were considerably restricted compared to the options at Hamilton and Springdale.

Availability of high-level courses revealed only part of the picture when it came to describing differences between schools. The percentage of students enrolled in honors and advanced-placement courses also varied greatly among schools. While state requirements for schools in Metro City and its surrounding suburbs mandated that students take two science courses (one full year) to qualify for graduation, the level of difficulty of these classes was not mandated. Students could fulfill their state and district requirements by taking either advanced-placement courses or less demanding courses, such as earth science and "regular" biology.

Curriculum Development

At some middle schools and high schools we visited, teachers worked together within their departments (math, science, language arts) to develop courses, review and select textbooks, and devise exams. For example, at East Middle School, team leaders met with other teachers of the same discipline to talk about the best instructional methods, implement the curriculum, and order materials and books. Teachers at Hamilton also worked as teams. Those teaching the same course met at least twice a year with course leaders to discuss changes in materials, textbooks, exams, and modifications in the curriculum. In addition, the exams at Hamilton were created by all who taught a given course. This cooperative scenario however, was not evident at every school we visited. Many teachers developed courses on their own, often using textbooks chosen by others.

Teachers also varied greatly in their degree of reliance on textbooks for in-class instruction. While districts and schools often provided guidance on textbook selection, the autonomy of teachers within their classrooms contributed to diverse practices in the "delivery" of the curriculum to students. This was obvious in the variety of the comments we heard from teachers. At South Central High School, for example, a science teacher indicated that he based the curriculum for his course on the textbook and also used the quizzes and tests which accompany the text. In contrast to this, the chairman of the science department at Hamilton High said that although the school had explicit criteria which the faculty must consider when choosing a science textbook, he "encouraged his faculty to not rely so heavily on the textbook." A math teacher at Hamilton said that in her class the textbook was optional. It was available as a source of reference and about 25 percent of the class chose to use it, but she preferred students to construct their own textbook from handouts and exercises used in class.

Generally, we found that teachers in Metro City schools that received higher levels of community support, financial and otherwise, often relied less on textbooks as the sole source of the curriculum. This was true at the elementary as well as the secondary level. In West City, district guidelines had a significant influence on the instruction of classes, but teachers were encouraged to go beyond the textbooks. According to one teacher at West Elementary School, "teachers are given a list of books which they can use to accomplish the state and district goals. They are also encouraged to look for other supplementary material to use in their classroom instruction."

Assessment

The assessment process was generally discussed by teachers and administrators as a set of assessments which exists on two levels, standardized exams at one level and in-class curriculum-based assessments, such as tests and quizzes, at another level. While these tests typically serve different purposes, most teachers, principals, and even parents recognized that these two very different forms of assessment were not totally unrelated to one another.

National-Level Assessment

No formal evaluation of progress towards Goals 2000 currently exists. However, an ongoing monitoring of scholastic achievement in schools in the United States occurs through the National Assessment of Educational Progress (NAEP). Since it began in 1969, NAEP has offered the only nationally representative and continuous assessment of student performance in various subjects (Mullis, Dossey, Foertsch, Jones, & Gentile 1991). The NAEP data, reported in the form of statistics aggregated by states, are used by the states to compare the performance of students in each state to that of the rest of the country.

Students in the NAEP sample, who are 9, 13, and 17 years old, take tests of knowledge and skills in reading, mathematics, science, writing, and history/geography. In addition, students provide information about themselves, their families, and their schools. Proficiency in each of the subject areas is broken down so that the scores of geographic regions (Northeast, Southeast, Central, and West), as well as the scores of each state, can be differentiated.

Of all the standardized exams which schools use or are required to participate in, the NAEP test appears to have the least impact on local school policy. It was seldom mentioned by school teachers or administrators when we asked them about the role of standardized exams.

Standardized Examinations

Most standardized exams in use in the United States have been created by a state department of education or a professional testing organization. They are used widely in U.S. schools to assess achievement levels. In fact, exams such as the California Achievement Test, the Iowa Test of Basic Skills, and minimum competency tests developed by various states have become a regular feature of the academic year for most schools.

We found that the California Achievement Test, the Iowa Test of Basic Skills, and the Stanford Achievement Test were administered by many of the Case Study schools, particularly at the elementary and middle school levels. Teachers noted that test results from these exams were often used to assess the achievement of individual students and to make recommendations concerning placement in courses at the middle and high school levels. For example, sixth-grade students at Vanderbilt Middle School took the Iowa Algebra Aptitude Test. Those who received a certain score then took another standardized achievement test. Students who achieved the prescribed math and combined (math and verbal) scores were allowed to participate in an advanced-track math class at the neighborhood high school. Although this was an unusual program in the schools we visited, we did find that standardized test scores as well as teacher's recommendations were often used to divide middle school students into math, science, and language courses of different levels of difficulty. Schools also sometimes used the test results to develop new classes for target populations, such as a prealgebra two-level class.

Statewide minimum competency tests are the primary method by which states currently assess their standards and their schools. These tests assess basic skills in reading, mathematics, and English (although Spanish-language versions are available in some states for nonnative speakers of English). In the lower grades they are used to monitor learning, while at the high school level they may set minimum achievement standards that are required for high school graduation.

As of 1992, 40 states had adopted mandatory minimum competency testing at several grade levels (U.S. Department of Education 1995). In this study, we found that two of the three states in which the field research sites were located required students to pass a minimum competency test for high school graduation. In addition, the minimum competency tests were used at all grade levels to assess individual and group (class) achievement levels and to monitor overall school achievement both through successive years and in comparison to other local schools.

Teachers from around the state in which Metro City was located were involved in the development of the State Goal Assessment Program. This program seeks:

to measure what students know and are able to do with respect to the seven goals for learning; to use student test results to describe how students, schools, and districts are performing in mathematics in comparison to the state and nation; to monitor mathematics progress of schools, districts, and the state over time; and to generate information on mathematics learning outcomes that will be used for accountability, policymaking, and school improvement.

A brief description of the assessment test used to evaluate achievement in math serves as an example of the testing format and procedure of this particular standardized state test. Tests for grades 6, 8, and 10 contained 70 items, which were divided into two 40-minute test sessions of 35 items each. The tests contained an equal number of multiple choice items (10) for each goal being assessed.

State requirements for East City and West City schools specified that an end-of-year exam be administered to students in each grade or class. In West City, these tests were offered in Spanish as well as in English because of the high percentage of nonnative English-speaking students enrolled in schools in this state. The tests were used primarily by the district to assess the overall achievement level of the schools. The end-of-year tests administered in the schools in East City were, in contrast, used to assess the achievement level of individual students. As one principal stated, "we are being much more specific about skills we want kids to master." He also stated that a students' performance was rated along four levels of mastery of the subject: excelled in mastery (level four); just mastered (level three); not mastered (level two); and has significant problems (level one).

The tests and rating criteria were new and the principal indicated that he did not yet know what they would do with students who received the lowest rating, because they were a year-round school and did not have the typical 3-month summer break that lent itself to remedial work. State end-of-year tests here were described as comprising a combination of fill-in-the blank, multiple-choice, and open-ended questions. In order to receive a level three rating, students must achieve the equivalent of 70 percent correct. We were also told that the end-of-year (or course) test at the middle school would generally count for 20 percent of a student's overall class grade.

Views on standardized exams. The use of standardized tests was among the most passionately discussed topics of the Case Study research among parents, teachers, and administrators. Opinions varied widely, according to each person's view of education, their role within the education establishment, and experience with standardized tests. In spite of the differences over content and form and the uses and abuses of test results, most agreed that they are important as a means of evaluating the extent to which certain standards have been met and of establishing a degree of comparability between schools throughout the state.

We found that principals, teachers, and parents were all well aware of the multiple uses of results of standardized tests. While some of the standardized tests were believed to be useful for instructional guidance and student placement in courses of varying degrees of difficulty, the end-of-year exams mandated by the state were generally believed to provide a less-than-accurate assessment of their schools and their teachers. This view was shared by teachers and administrators at all the schools we visited, regardless of the school's history of achievement. Teachers at most schools viewed the state-mandated tests as a "necessary evil," something to be tolerated. However, teachers from schools with many low-achieving students expressed a deep sense of resentment and unfairness at the public comparison of schools based on these test results. These feelings came across in many different interviews. A principal at South Central said the tests are "unfair to me and my staff." A teacher at Parks Elementary school stated, "comparisons between the worst and the best schools are ridiculous." Teachers at these schools often pointed out that their students faced many social problems that interfered with learning and that it was impossible to judge the effectiveness of the teachers or the school by comparing them with schools whose students did not face the same obstacles.

Despite the general dislike of state-mandated testing programs, most of the teachers and principals in Metro City said that they felt some pressure to maintain or improve the students' performance each year. Test results for each school were published in the local newspaper, and parents and community members were said to hold the schools accountable when the results did not meet expectations. Teachers and principals at Rockefeller Elementary and Vanderbilt Middle Schools in particular indicated that parents compared their school's test results to other neighborhood schools and complained if their score results were slightly lower. The chairman of the math department at Hamilton said that each year he must go before the school board, answer questions, and defend what the department is doing. "The roughest part is answering the question: how come you didn't improve as much this year as last year?"

Test preparation was not an issue in East City schools, since the state end-of-year test was more closely linked by the state to the curriculum being taught in the schools. According to the principal at East Middle School, "the state is moving away from norm-referenced testing toward criterion-referenced testing based on the state curriculum which is expected to be taught."

Although there were differences between the schools, teachers and principals at most of the schools in Metro City said that students were given some in-class preparation for the state test. In several schools, old copies of test questions were used to prepare students for the type of questions they were likely to encounter. Although it was difficult to get a firm idea of the amount of time teachers spent doing this, it was clear that at some schools the test preparation was intensive for several weeks before the test was administered. School administrators at Vanderbilt Middle School downplayed the school's activities in preparing students for the test, but we found that both the assistant principal and several teachers had materials for providing such preparation. In addition, one of the students we interviewed said that she and her classmates had received test preparation "from day one." Another student at this school reported that his teacher had been preparing the class for the state test for 3 months before the exam. Reports from other schools indicated that teachers may spend 1 to 2 days a week going over practice questions in the weeks proceeding the exam. Thus significant amounts of time appeared to be spent in preparing students for these tests.

Although many teachers commented on the lack of fit between the state assessments and the curriculum, the principal at Vanderbilt Middle School pointed out that since the State Goals Assessment Program was not specifically designed to measure coursework, a "smart" local district would try to figure out what it was testing and try to incorporate the material into the local curriculum.

In-Class Tests and Quizzes

In contrast to standardized tests, which were administered in schools once or twice a year, in-class tests and quizzes were found to be administered at the elementary and middle school levels every 2 to 3 weeks or at the end of every unit covered in the textbook. The frequency of quizzes was more variable. However, among math teachers in particular, quizzes were often given on a weekly basis to keep students focused and up-to-date on the material in the week's lesson. In-class tests at the high schools were said to be administered less frequently than at the middle and elementary schools and sometimes consisted of only a midterm and a final test at the end of the semester. In general, teachers at all school levels had considerable discretion over both the frequency and the content of in-class tests.

A teacher at Parks Elementary, like many other teachers, said that she used the unit tests in math that come with the textbook series. She also gave a lot of quizzes which she developed herself. Midtown Elementary School used the same textbook series as Parks did for math, and the teachers there also said that they used the exams that came with the text. They added that at their school "70 percent must pass each unit test or the unit must be retaught." In contrast to these elementary schools, heavy reliance on prepackaged curriculum and tests, the teachers at Rockefeller Elementary School rarely relied on textbooks for instruction. The Rockefeller teachers also constructed performance-based tests and used student constructed portfolios to assess learning rather than traditional paper and pencil tests.

Many states and school districts are turning to performance-based assessments to complement traditional testing programs. Performance-based tests require students to demonstrate what they know by responding to problems they have not previously met by calling on the skills and information they are supposed to have acquired in class. The tests are based on the premise that testing should be closely related to things students are learning and may include portfolios of student work, exhibitions, science experiments, oral interviews, and performances.

The state in which our primary research site was located recently informed schools that they must develop, based on the state's goals for learning, two forms of assessment for the measurement of desired outcomes in six curriculum areas. One of these two forms of assessment must be performance-based. According to one principal, "the schools are just getting this off the ground, and one problem is that the staff must undergo training in alternative assessment."

Among the teachers with whom we spoke, there seemed particular eagerness among science teachers for performance-based assessments and dissatisfaction with more traditional types of tests. A common complaint from science teachers was that the memorization and testing of vocabulary was boring and not relevant to what students were learning in their labs.

Standards in the classroom. Course grades were typically determined by the results of both quizzes and exams. However, teachers often had other criteria, which they included in the final grade decision. For example, a middle school teacher in Metro City said:

> There are three important factors, which I consider in addition to test and quiz scores. They are: whether the student has asked questions when they are lost, whether they have participated in the classroom, and whether they have completed homework assignments. Students who do well in these areas can be bumped up to a higher letter grade if they are borderline.

At Rockefeller, students created their own portfolios with guidance from the teacher. Students were also given an opportunity to set goals and reflect on their work. To inform parents of their student's progress, teachers wrote narrative reports twice a year about each child in each subject area. The narrative report coincided with a parent conference at the middle of the year, and at the end of the year students presented their portfolio work to their parents, and the parents received a second narrative report from the teacher.

Although teachers indicated that it was possible to retain a student in a grade as a consequence of poor performance, it was clear that it was a more feasible option in some schools than in others. In East City Middle School, the principal said that a student's course grade must average 70 percent or they may be required to repeat the class. Remediation was often described as occurring over summer vacations or during intersession breaks (for schools on a year-round calendar). However, in some schools students were passed from grade to grade despite their low levels of achievement. Teachers at the schools with the poor test results expressed a strong concern about the effects of retention on students' self-esteem. At Parks Elementary, a teacher said he would not take the responsibility of holding students back in fifth grade when their classmates were leaving for the middle school. "If I were a kid who had been held back, I would stop coming to school. That would be too big a blow." A science teacher at Metropolitan School stated firmly, "I will not fail students who put forth effort."

The principal of South Central Vocational High School indicated that a large percentage of the student population at South Central read at the elementary school level when they entered high school (ninth grade). These students had been passed through the grades regardless of their level of achievement on in-class or standardized tests.

Although some students were passed on from grade to grade regardless of their level of achievement, most the teachers and principals we spoke with in Metro City had clear criteria by which they judged student performance, were identifying students who needed extra assistance, and were contacting parents about students' academic problems to enlist their support.

Learning Environment at School

Financial Support for Schooling

Statistics on funding sources for public elementary and secondary schools for the 1992-93 school year indicate that nationally 46 percent of school funding came from the state level, 47 percent from the local level, and 7 percent from the federal level (USDE 1995). However, according to the same source, the distribution of funding for schools in the states in which our research sites were located was quite different. Schools in East State and West State received approximately 62 percent of their funding from the state. However, schools in the state in which our primary site, Metro City, was located, received approximately 29 percent of their funding from the state, 7 percent from the federal level, and the remaining 62 percent from local tax revenue in the 1992-93 school year. This heavy reliance on local tax base revenues meant that school budgets varied across school districts, with the high-income, high property value school districts able to support higher spending levels for their schools.

State money, local money, and federal money were all funneled to individual schools through the district office. Schools typically received state and local funds from the school district based on the number of students enrolled. Federal funds were awarded to individual schools, although the application generally went through the school district, based on the number of students they enrolled who had special needs. Schools enrolling special education students, students from low-income families, and students whose native language was not English received federal funding to support programs for these students. Although the funds were distributed by the districts, it was the responsibility of the principals and vice principals of the individual school's to manage the budgets for each of these allocations. Principals in Metro City indicated that this recent shift to school-based management had its benefits, but had also greatly increased the administrative workload in the schools. Budget expenditures were approved by local school councils (boards) and, in some cases, also by the district's school board.

The fact that schools within particular districts in Metro City shared the same tax base and received over half of their funding from local tax revenues meant that schools within the same school district generally worked with fairly equitable budgets. However, there were often large differences in funding between districts in Metro City. These differences in funding were often reflected in differences in schools' physical facilities, educational resources, and teachers' salaries.

Two Elementary Schools in Metro City

In the 1993-94 school year, per pupil spending was $3,835 in the school district to which Parks Elementary School belonged. In contrast, per pupil spending, for the same time period, was $8,035 in the district to which Rockefeller Elementary School belonged. A brief description of two classrooms from these schools in Metro City illustrates the markedly different environments in which children attend school.

Parks Elementary School is located in an inner-city neighborhood surrounded by apartment buildings, built on average over 70 years ago. In contrast, Rockefeller Elementary School serves a very affluent suburban neighborhood, surrounded by large single-family homes with extensive lawns and well-tended yards. At Rockefeller, the windows of the classrooms open to a view of a nearby woods which surround the school. The classrooms are carpeted, include a round worktable for projects, a television and VCR. In contrast, the classrooms at Parks were crowded with aging chairs and desks, the wooden floors provided no sound absorption, and a window made of glazed-over plastic blocked the view to the outside.

Policies and Procedures That Influence Achievement in Elementary Schools

At both the school district and the school, decisions are made in regard to areas such as curriculum content, the selection and use of textbooks, homework requirements, and the use of technology in the classroom. These decisions, which establish school policy, inevitably affect some of the basic operations related to learning and standards.

The elementary schools we visited differed in the amount of structure that they imposed on teachers. These differences were often reflected in the degree to which they relied on textbooks for the delivery of the curriculum and the degree to which teachers were required to demonstrate to school administrators that they had successfully presented the curriculum. The teachers in the highest-achieving elementary school had the most freedom from structure. They were allowed, and even encouraged, to teach without relying on a specific textbook. Instead, they used materials from a variety of sources. Teachers at this school also described their own standards for the curriculum they taught as being above those required by the state's curriculum guidelines. As an example of these higher standards, they spoke of a project, which they were working on that involved the creation of a framework for a new math curriculum based explicitly on NCTM standards.

On the other hand, teachers at the middle- and low-achieving schools said they used textbooks that have been chosen specifically by the school (or a committee of teachers at the school) to teach the curriculum. Some of the these schools also required teachers to demonstrate through in-class tests that at least 70 percent of their students had learned the information presented in each of the units; otherwise they were required to reteach the unit. Most of these teachers said that while they were free to add to the curriculum using materials from other sources, coverage of the required curriculum was first priority.

Teachers in Metro City and West City elementary schools indicated that the textbooks were often specifically chosen because they incorporated materials required by the state's curriculum guidelines. In fact, in West City, the district gave the schools a list of approved textbooks, which incorporated materials specified by the state's curriculum guidelines.

Most of the elementary schools we visited had explicit homework policies. Often these were in the form of general homework guidelines for each grade. Very little homework was generally assigned in the first and second grade, but by third grade, students were usually required to do approximately 30 to 45 minutes per day and by the fifth grade, students could expect up to 1 hour of homework per day. In addition, most schools recommended that students read for pleasure at least 30 minutes a day at home.

The one elementary school that differed significantly from the above pattern was the school with the lowest scores on the state assessment, Parks Elementary. Homework assignments were a debated issue at Parks. Some members of the parents' council argued that it was unfair to assign homework when some of the children did not have parents who could help them. As a result, many teachers did not assign homework. In response to one of our questions, the principal replied:

> All I can say is that it's easy to teach kids who are well prepared, who have the parents helping them, who have the advantages of the average middle-class child. It's hard to teach kids who don't have advantages, who can't go home and say 'help me.'

Technology in the form of computers and calculators was used by all of the elementary schools we visited. Although all had computer facilities for students, the highest-achieving school, located in the wealthiest school district, had the best computer facilities of any of the elementary schools. Computer learning games were commonly used at most of the elementary schools, although the frequency with which students had a chance to use computers varied from school to school. In addition to the use of computers for in-class instruction, teachers at Midtown Elementary also used computers to help students develop library skills.

We also found that calculators were incorporated into the math instruction in most of the schools we visited. However, they did not play a dominant role. For example, teachers at Rockefeller said that calculators were used for "drill and skill" work and to familiarize students with the different mathematical operations.

Policies and Procedures That Influence Achievement in Middle Schools

Curriculum policies at the middle school level often pertained to textbook selection and to the division of students into course levels by their level of ability. We found that, as in the case of the elementary schools, the high-achieving middle school (Vanderbilt) gave teachers the greatest autonomy in the development of courses and the use of textbooks. Vanderbilt also was the most active school in coordinating curriculum content with the high school to which their students would go following the eighth grade.

We found that most of the middle schools provided at least some courses at more than one level of difficulty. The criteria used to divide students into different course levels most often were the student's previous grades, their test scores on standardized exams, and their teacher's recommendations. Students were most commonly divided into ability levels for mathematics, science, and language arts classes, although there was variation among the schools. Vanderbilt tracked students into five levels of math courses in the eighth grade, and students with the highest test scores were offered an opportunity to begin taking math classes at the high school through a special program.

At King Junior High, students were tracked in math and in languages but not in other subjects. Math was offered in three levels beginning in the seventh grade. Similar tracks in math were found in East City Middle School. However, in the lowest-achieving middle school that we visited, math was offered at only two levels. The students enrolled in accelerated math were part of a special program at this school to separate and challenge "those students who are working at or slightly above grade level, and raise the expectations and the work requirements." The parents of students in this school were also required to commit to support their student in writing when their student joined the accelerated track.

Most of the middle schools we visited had explicit homework policies that were spelled out in their *Parent/Student Handbook*. The eighth-grade students we spoke to in Metro City and in East City said that they could expect 1 to 2 hours of homework per night. Only one school did not have a written homework policy. In this school, the length of homework assignments was left up to the discretion of the teachers.

Teachers we spoke to also indicated that they adjusted homework requirements to the students in the course. For instance, one teacher at King Junior High, a middle-achieving school, said:

> I let prealgebra 1 students do homework in class, but not the prealgebra 2 or scholars math kids. If I didn't let them do it in class, 80-90 percent of the prealgebra 1 kids wouldn't do it, because they can't keep track of their stuff.

Completion of homework was also a controversial issue at the lowest-achieving middle school, Metropolitan, where completion of homework assignments was a chronic problem among students who lacked parental support.

All of the middle schools in Metro City had computers available for in-class instructional purposes. However, the actual use of computers varied a great deal from school to school, and some schools had much more extensive computer facilities and offered more opportunities for students to interact with computers. One example of in-class computer use was demonstrated by a science teacher at Metropolitan, who used a computer program that simulated the dissection of a frog in her biology course. Another very different usage was observed at Vanderbilt, where students learned how to use an electronic spreadsheet in the computer lab as part of their math lesson. Vanderbilt also offered a computer course as an elective course for students; however, we did not find that this was a common offering at other middle schools.

Calculators were used in the middle schools we visited, and most of the middle school math teachers we spoke with indicated specifically that they allowed students to use calculators as a time-saving device, particularly when working with fractions.

Policies and Procedures That Influence Achievement in High Schools

We found the greatest differences between schools at the high school level. The highest-achieving schools, such as Springdale and Hamilton, offered the greatest variety of courses and more levels of courses in subjects such as math and science than those offered at South Central or Uptown.

According to its principal, Springdale has traditionally upheld high standards and resisted attempts to erode those standards. In addition, Springdale offered over 200 hundred courses, ranging from advanced-placement courses in calculus and astronomy to vocational courses in food service management and interior design.

At the opposite end of the spectrum were the schools with the lowest-achieving students, such as Uptown High and South Central Vocational High School. Uptown had a wider range of students than South Central in terms of levels of ability and had adapted its course offerings for this range. Among the courses were many math and science courses at two levels, regular and honors. Calculus, chemistry, and physics were also offered at the advanced-placement level. Both Uptown and South Central enrolled students in several 2-year vocational programs, such as metal working and auto mechanics. South Central also offered regular academic courses; however, the principal at South Central said that many were remedial courses, since the majority of their students required courses at this level. A consistent response in the interviews with teachers at South Central was that they were "doing what we can."

Homework expectations were quite high at the high- and middle-achieving schools we visited, although not all schools had a written policy on homework. At Springdale, the school catalog stated that students can expect "an average of 40 minutes of out-of-class homework per subject each day, and that students in basic, regular, and accelerated classes are expected to spend about the same amount of time on homework." At Hamilton, we were told the amount of homework assigned depended upon the level of the course. The prevailing view at Hamilton was that "it was better to assign quality problems rather than just a large number of problems." Again, in contrast to these two schools, were the remarks of teachers at South Central, who indicated that they did not often assign homework because the students seldom completed the assignment. They went on to explain that most students left their books in their lockers, because they did not want to be seen on the street with a textbook under their arm. There was a stigma attached to being a good student. Teachers said that such students were ostracized and "put in their place" by their classmates.

As at the elementary and middle school levels, high schools generally encouraged the use of calculators and computers. Students in accelerated math courses at most schools were using graphing calculators, and computer usage was often incorporated into the curriculum and instructional methods of particular courses. At Hamilton, computer courses were offered through the mathematics, fine arts, business education, cooperative education, and industrial technology departments. At the lowest-achieving school, South Central, computers were used for testing students' academic abilities and often to offer remedial instruction.

Home Environment, Parental Involvement, and Parental Expectations of the Schools

Children who attended the schools we visited lived in neighborhoods that differed significantly on several dimensions, such as condition of housing, level of income, frequency of mobility, construction of "family unit," level of education of primary caretakers, and safety. In addition, differences in the level of involvement of parents and their expectations of the schools emerged from some of the interviews. This section describes the similarities and the differences among the parents we interviewed and the schools we visited.

Home Environment and Parental Involvement in Schooling

The mothers and fathers we interviewed represented some of the most involved and concerned parents in each of the schools. Although we did not interview parents who were unwilling to take the time to meet with us, we gained insight into the lives of parents who had less time or little interest in the activities of the schools.

One of the mothers we interviewed at Parks Elementary was among the 10 to 15 engaged parents who sit on the local school council and other school committees. Other parents participated directly in-school activities as classroom and security aides. Mrs. P., who has a high school education and was a housewife, admitted that the academics at Parks were "not the best in the world." She said she believed that every child can learn, "the school just needs different teaching tools and techniques." An example of the difficulties faced at this school is the fact that many of the parents of students at Parks Elementary do not speak English. The principal said that it was not unusual for students in these families to miss school so that they could accompany their parents to an appointment and function as the interpreter. However, the teachers at Parks also noted that most of the children of immigrants lived in the most stable home situations and their parents held high expectations for their education and encouraged them to complete their homework.

The principal at Midtown Elementary School placed parents into three categories: (a) those for whom school was a baby-sitting service, (b) those who showed an active interest in the work and life of the school, and (c) those who wanted their children to do well and who wanted a safe environment, but were not involved. The principal went on to give examples of students who were not well cared for at home and said "We demand a lot more—that the kid is fed, has supplies, gets to school on time, has a good night's sleep, and has had his assignments checked." He estimated that for a quarter of the students at Midtown these basic needs have not always been met.

Two mothers interviewed at Midtown, both housewives with a high school education, expressed the hope that their children would someday attend college. While both parents said that they wanted the best education for their children, they said that what was most important was for them to be happy and to do their best.

Parents at Rockefeller expected a lot from the school, but also provided a great deal of support by volunteering their time to coordinate science fairs, lead book groups, assist in classrooms, and help in many other school activities. The parents at Rockefeller stressed how vital it was for parents to be involved in their children's education. The family math workshop, taught at the school by a parent volunteer, was just one example of the level of involvement of parents in the community and the level of volunteer resources that the school was able to draw upon to assist children in their learning. Sixty parents had recently received training at the family math workshop.

One particular story was indicative of the value that parents in the community expressed towards a good school environment for their children. A mother, who herself had a master's degree in Business Administration, said that she and her husband had looked all over the metropolitan area for a progressive school system which took account of individual styles of learning, a favorable student/faculty ratio, and a willingness to deal with different levels of ability within the classroom. They had considered private schools in their search and had eventually chosen to relocate to the neighborhood of Rockefeller Elementary School, because it most effectively represented what they were seeking in a school.

Parental Expectations

A teacher at King Junior High best expressed the belief of many of the parents and teachers with whom we spoke regarding factors in the academic achievement of students.

> Parents, parents, parents. If there is somebody at home saying "School is important," "Do your homework," or, "Let me help you," you are going to be successful.

The director of counseling at Hamilton High had this to say:

> I think there is a high correlation between impressive academic achievement and parental involvement. Where parents are involved, kids are performing better.

While there was an overall consensus that parental support and encouragement were important factors contributing to success in school, we found that parents varied in their expectations of the school and of their children. Academic success was sometimes defined differently, depending on the level of competition at the various schools and the parents' expectations for their children's future academic and career opportunities.

A fifth-grade teacher at Central Middle School explained that parents in the local elementary school that sent students to their middle school were sometimes upset if their child was not placed into a special math program that offered long term opportunities for higher-level math courses. He said that they believed "if my third-grader is not chosen, then he can never take algebra in the eighth grade, which means that he will never be able to take calculus in high school, and he will never get into Harvard." He went on to say that it "broke his heart because the children were only eight years old when all of this was taking place."

Another teacher at Central reported her experience:

> I see parents who are very successful in their own right with a high educational level, income, and success. They want the competitive edge for their children, so that they can go to Harvard, Stanford, or Yale.

A parent from the same community noted that "most people are jumping through hoops to make sure their children get A's." Her hopes for her own daughter was that she fulfills her own goals and get good grades. Her expectations for the school was that it would teach students to be confident of their ability to think and analyze and that it would enable them to develop several academic strengths.

The level of competition found at the high-achieving middle schools carried over into the local high schools. Both types of school were often located in the same general neighborhoods and therefore were influenced by the same pressures from parents. However, since the high schools were much larger institutions, they also had more diverse student populations in terms of level of achievement. As a result, the high schools offered courses at multiple levels of difficulty. Honors and advanced-placement tracks were the preferred or recommended tracks for those expecting to go on to college, but general-level courses did not preclude a student from taking the college entrance exams.

While parents often were not actively involved in volunteer activities at the high school level, parents of both Hamilton and Springdale High students were well aware of the opportunities which these schools offered. Parents also spoke of the responsiveness of the schools to their requests for changes in the level of courses for their students. However, in an indication of the increasing independence of students at this level, most parents said they believed it was up to the students to take advantage of all that the school had to offer.

In contrast to students at Hamilton and Springdale, students at Uptown High School and South Central, according to the students and parents we spoke with, often had very little in the way of parental support. In fact, one mother of a student at South Central said she told her child, "The world don't owe you anything. Your parents don't owe you nothing. You owe them."

The principal at South Central had hired someone to call parents and invite them to meetings of the local school council and other school events. He attributed the lack of involvement to the "intimidation factor" among parents whose own experiences with school "had left a bad taste in their mouths; people talked down to them, so they have a bad image of schools."

Among the South Central parents who were actively involved in the life of the school, one father reported that since he started doing volunteer work as a security guard in the school, his son had earned straight A's. One of the mothers at South Central said that she expects the school "to teach the kids and let them know that education is very important." Both parents agreed that the school should offer courses at different levels, so that the "advanced students could go up and not be slowed down by the slow students."

The student counselor at Uptown High School had this to say about the role of the family:

> The family is very important. They come here and say—you take care of him. We don't know how to handle him anymore. Somewhere along the line parents just give up. By the time the students get to high school, they have given up too. The streets are a big draw.

Teachers at South Central often spoke of the differences in parental support along cultural and ethnic lines and attributed some of these differences to a higher percentage of two-parent homes among some ethnic groups. Having two parents at home, they say, positively affected student motivation towards school. An English teacher at South Central added:

> Students now get less family support. We have a lot of latchkey kids. There are often no parents at home when the kids get home from school and sometimes, instead of supporting students so that they can make better grades, the parents resort to violence.

Despite these critical comments by teachers and counselors at the two lowest-achieving high schools, we did speak to several parents who were interested in their adolescents and in what was happening at their adolescents' schools. However, their comments also revealed that their expectations about what the school would provide their students and their expectations about postgraduation opportunities differed from those expressed by parents at the higher-achieving suburban schools.

A mother who had emigrated from Vietnam and had a daughter enrolled at Uptown High agreed to speak with us. Both she and her husband graduated from high school in Vietnam. She said she comes to school frequently to meet teachers and checks her daughter's report cards. Both parents wanted their daughter to attend college. When her daughter told her that she wanted to be a doctor, Mrs. N. said that she suggested, because of their low income, that her daughter study nursing in college.

Unlike most of the parents we spoke with in the higher-achieving suburban schools, a father we spoke to at South Central did not see college in his son's future. He said he wants his son to become a certified auto mechanic after graduation. He also expressed satisfaction with the training his son was receiving in the automotive program at South Central, and likened it to on-the-job training. He had told his son, "cars will be here for the rest of your life. You can work on two cars a day and pay the rent."

In summary, there emerged from our interviews with parents, teachers, students, and administrators a clear indication of the strong influence that parental support for schooling can have on students' levels of achievement. In addition, the different expectations of students and parents regarding the viability of opportunities for university study often influenced student motivation.

The Transition Beyond High School

The transition to life beyond high school begins in a student's middle school years, if not before. We found that generally the middle schools with the highest scores on state standardized tests had developed more extensive course offerings, which were differentiated by level of ability, than schools with lower overall levels of academic achievement. Early enrollment in the highest level courses led to increased opportunities for advanced-level courses in high school. In addition, most teachers, parents, and students said they believed that enrollment in honors and advanced-placement courses gave students better preparation for college entrance exams than did regular courses. However, college was never excluded as an option for any student. At one of the high schools we visited, the lowest of the three levels of academic courses (below honors and advanced-placement levels) were called "college prep" courses. And, a counselor with whom we spoke at Uptown High School said that even enrollment in a metal-work vocational program offered at Uptown would not prevent a student from further study at college.

Examinations for High School Completion and College Entrance

In the last decade, many states have mandated that students graduating from high school must pass a minimum competency test. In fact, one of the states in which the Case Study sites were located required these tests. Although many people believe that the standards set by these tests are too low, they represent an attempt by states to assure employers that high school graduates will be able to read and write and do basic mathematical functions.

These tests operate as a standard for all students, but particularly for those who will be directly entering the world of work.

Students who plan to pursue a college education must typically take one of two college entrance exams: the ACT (American College Test) or the SAT (Scholastic Aptitude Test). Exam scores from the ACT and SAT can significantly affect a student's chance of admission to top public and private universities.

Both the ACT and the SAT are commercially prepared exams that are offered throughout the United States. Many students take both exams to comply with the admission requirements of various colleges to which they are applying. They generally take the ACT and SAT during the 11th or 12th grade in high school. The PSAT, a practice test for the SAT, is taken by some 11th-graders. The cost of these tests is usually borne by the students or their parents.

According to literature obtained from The American College Testing Program (Web Site June 21, 1996), "The American College Testing (ACT) Assessment is designed to measure educational development in the areas of English, mathematics, social studies, and natural sciences. The ACT Assessment is taken by college-bound high school students and the test results are used to predict how well students might perform in college." The cost of the test ($19 to $22) is borne by the students or their parents. Test scores are automatically forwarded to the colleges and universities to whom students indicate they will be applying.

The SAT is a seven-section, 3-hour exam. Three of the sections are verbal, three are math, and one is an experimental section used by the test-makers for research purposes only and is not counted toward the final score. Students receive two scores on the SAT, one math and one verbal. Each subject is scored on a scale of 200–800, with a national average of approximately 500. The basic registration fee for the SAT in 1996 was $21.50, although students who choose to take additional subject tests also pay fees for these extra assessments. (Web Site June 21, 1996)

Both Springdale and Hamilton High Schools offered after-school classes to help students prepare for the upcoming SAT exam. The classes offered at Springdale were prepared by a test preparation firm, and students who chose to take the classes were required to pay a $100 fee. Students who did not have the opportunity to enroll in preparation programs could purchase books that contained practice questions and suggestions about how to do well on the tests.

Qualification for Post-High School Academic Choices

The most prestigious universities and colleges in the United States maintain their standards by admitting only those applicants who have achieved very high scores on the ACT and the SAT. ACT and SAT scores are also very important criteria for most other colleges and universities as well. Almost all will publish in their school bulletins the specific minimums ACT and SAT scores they require to qualify for admission.

Despite the rigorous admission standards of many colleges and universities in the United States, there is also an element of self-selection to the admission process. Students generally choose to apply to colleges that are at a level appropriate for their abilities rather than risk rejection by applying to schools with more stringent requirements. As a result, most prospective students are admitted to at least one of the schools, to which they apply, reducing somewhat the typical student's level of concern about being admitted to college. Generally, the admissions requirements for 2-year colleges are substantially more relaxed than those of 4-year institutions. Two-year institutions often serve as a stepping stone to the more competitive and comprehensive 4-year institutions. In addition to the many public and private 4-year colleges and universities, and the liberal arts and technical programs offered at 2-year community colleges and junior colleges, there are a variety of private and public vocational training institutes which offer programs which vary in length from 6 to 24 months. Students may choose to attend one of these programs following high school if they are interested in a particular vocation. The basic admission requirement to most of these institutes is receipt of a high school diploma.

Student and Parent Perceptions of College

The students attending middle- and high-achieving high schools that we interviewed were generally well informed about academic and nonacademic requirements for admission to colleges and universities. This was especially true of those students enrolled in schools with counseling offices focused on college entrance. Most of these schools had high school counselors who maintained a resource room of materials related to college entrance, including information about college entrance requirements, test preparation for the ACT and SAT, and a selection of college and university catalogs. Counselors also often helped students by administering skills and interest inventory tests.

Another important source of information and encouragement regarding college enrollment was the home environment. Particularly at those high schools and middle schools with large segments of high-achieving students, parents themselves had earned college or professional degrees and had high expectations that their children would also attend college. These parents often gave us the academic history of all of their children, including those who had finished high school and gone off to some prestigious college or university.

While parents of students from middle- and low-achieving high schools also frequently aspired to send their children to college, they were likely to mention the financial cost involved and were supportive of vocational training programs. In addition, some parents at these schools indicated they knew little about the process of college admission or the courses students should take in high school to best prepare themselves for college. A few indicated that they thought there was too much emphasis on college as a necessity. A parent of a student at King Junior High said: "To me schools in America are aimed toward college. If I were to change anything as a policymaker, I'd have a lot more emphasis on the trades."

Several students, whom we interviewed at Uptown High School, where parents were unlikely to be able to afford college tuition, had plans for attending local colleges after graduation. All were relying on scholarships and were aware of the necessity of earning good grades in high school to achieve this goal. This perception was particularly common among immigrant students at both Uptown and West High, the majority of whom were Asians or Hispanics with strong family support for higher education. These students saw higher education as the way to improve their economic situation and assist their families.

At South Central a student whom we interviewed spoke longingly of his dream of attending a southern university renowned for its athletic achievements on either a scholarship or financial aid, although it was unclear whether either of these would be available to him. He had no personal financial resources to support studies at a university.

Through our interviews, we found that most high schools offered courses and services that were geared toward preparing students for admission to college or university studies, although the level of preparation a student received often varied. Differences in preparation sometimes began as early as the middle school years, when students in some schools had access to higher-level courses. High school students interested in college generally tried to prepare themselves by taking honors or advanced-placement-level courses, but students who were enrolled in general-level and vocational courses were also often interested in college as an option following high school.

All of the high schools we visited had counseling offices to assist students with academic decisions following high school. In most cases, the counseling offices, particularly in the middle- and high-achieving schools, were geared towards preparing students for entrance to college. Students at the middle- and high-achieving schools also had more parental support and more financial resources, making enrollment in a college or university a viable option. However, high-achieving students at even the lowest-achieving high schools aspired to college and intended to pursue this goal if they could obtain a scholarship.

Summary

Standards of education in the United States emanate from a variety of sources external to the schools as well as from internal policies and regulations that are more specific to individual schools.

External Influences

Schools in the United States are not governed by a set of mandatory national education standards or regulations. However, a set of six national goals known as Goals 2000, were created in 1989 as a framework for improving student achievement, and two more goals were added to the list in 1994. While these goals have helped to raise public awareness of the parts of education that need attention, action plans for meeting the goals have been left up to state and local initiatives.

States began playing a larger role in the development of comprehensive standards during the last decade. Prior to this, standards were primarily left up to the schools and school districts. However, many states have now developed academic goals, curriculum guidelines, and minimum competency requirements that they distribute to schools within their state. While states have generally developed these goals, guidelines, and requirements independently of one another, they have all been influenced by the national dialogue surrounding the movement for education reform. In addition, the development of voluntary national standards by nongovernmental organizations, such as The National Council of Teachers of Mathematics, has helped to shape curriculum guidelines at both the state and the school levels. Voluntary national standards have been developed in mathematics, science, and history and are currently being developed in other subject areas as well.

We found that teachers' and parents' attitudes towards voluntary standards, such as the NCTM standards, were generally positive. In addition, we found that there was a high awareness of NCTM standards among teachers and an effort on the part of most schools to adjust the curriculum to meet NCTM standards.

Teachers' reactions to state standards were more variable. There seemed to be a higher degree of acceptance of state standards at the secondary sites than in the schools at the primary site. At the primary site very divergent attitudes were expressed regarding the state standards. Although many elementary and middle school teachers were using textbooks that incorporated curriculum areas tied to state standards, most teachers and principals spoke critically of the state assessment test.

We found that initiatives to raise standards that were developed at the school or school district level varied greatly in scope. However, parents and teachers generally said they were supportive of these initiatives, because they had been developed in response to a real need. Many teachers also spoke of the relationship of local initiatives to district or state goals or guidelines.

Internal Influences

We found that achievement standards could vary by school and by course level, but the grading practices of the teachers were generally in accordance with policies of the school administration. In some schools, teachers were given a great deal of autonomy in presenting the curriculum and in developing in-class tests. However, many teachers participated in teams or departments which worked together to develop standards for student achievement for each course.

Students' grades for courses were typically determined by the results of both quizzes and exams. However, we found that many teachers had incorporated performance-based tests into their grading. In some cases, the inclusion of performance-based tests was a matter of school or even state policy.

Within middle schools and high schools, certain academic subjects, such as math, science, and language arts, were often offered at two or more levels of difficulty. At middle schools, students were placed into higher-level courses based on standardized test scores, previous course grades, and teachers' recommendations. In most cases, high school students could chose courses at a particular level, according to their own interests, previous course enrollments, and academic goals. Standards for achievement were highest in the advanced-placement courses, followed by honors courses, and then regular courses.

At the schools we visited, students at middle- and high-achieving high schools often had a greater selection of academic courses to choose from than students at low-achieving schools, including a wider variety of honors and advanced-placement courses. In addition, students at middle- and high-achieving schools had more support for their education from their parents. This combination of greater academic opportunity and support contributed to higher achievement scores and increased opportunities for college enrollment.

Thus, while there have been significant developments in curricula and assessment standards at the state level that have affected school districts and schools in the United States, academic standards that influence the operation of schools and the achievement of students also originate from within individual schools.

Chapter 3

Individual Differences and the United States Education System

By: Douglas Trelfa

> If I aim the expectation at the better students, the other ones are so left behind that they don't have the vaguest idea of what's going on. If I make it too easy, it bores the brighter ones, so the idea is to try to hit a middle. At least that is my idea. And sometimes it's pretty good and sometimes the middle bores the ones at the top and it's too hard for the ones at the bottom. (Physics teacher, Springdale High School)

Introduction

Although all educators acknowledge the existence of large individual differences in ability among students, in this study we found a diversity of beliefs regarding the question of how to deal effectively and fairly with these differences. For instance, while some parents and teachers reported believing that children learn best in classrooms with other children of similar ability, there were others who felt that students learn best when taught in classrooms with peers who have a wide range of ability. Some teachers and administrators stated that even early tracking of low-ability students into vocational programs would be beneficial, while several argued for eliminating tracking and vocational courses at the high school level.

We found that the variety of beliefs about how to deal with individual differences in ability was mirrored in the variety of actual practices at the schools. Some schools had two or three levels of courses in math and science; others had four or five levels in these subjects. Some schools were working to eliminate or reduce ability grouping; others were increasing the levels of courses offered. Some schools emphasized portfolio grading; others emphasized standardized test scores in computing students' grades.

The variety of practices regarding individual differences is in part a consequence of a system of local control of schools. Local school districts in the localities we visited had a great deal of autonomy. They used this autonomy to create a diverse mix of educational programs designed to meet the needs of diverse student populations. Even principals and teachers were given a great deal of autonomy in managing individual differences at the school and classroom levels.

In this chapter, we use the phrase "individual differences" with some reservation. When we speak of individual differences, we refer to individual differences in academic performance among students that are based on variations in aptitude, interest, life history, personality, and the characteristics of the evaluator. This inclusive conception recognizes that individual differences have multiple sources and occur within a social context. It takes into account the many domains in which children vary. Our focus is on individual differences as they are related to achievement in math and science.

Field Research and the Topic of Investigation

We had conversations with teachers, administrators, students, and parents in three cities in the United States and conducted related classroom observations of the 16 schools that we visited in these 3 cities. Our discussions focused on the views of respondents about the sources of individual differences in ability, the practices related to these differences, and their efficacy and fairness. Most of the respondents voiced strong opinions about these topics and were generally frank and forthcoming in offering their opinions about the problems they see in this area.

At the primary site, Metro City, the author conducted most of the interviews and observations pertaining to individual differences. In addition, a number of interviews dealing with this topic were conducted in Spanish by Carmen Maldonado de Johnson. Also, Mavis Sanders conducted a portion of the interviews with African-American respondents. Carmen Maldonado de Johnson and William Foraker conducted the interviews and observations on this topic in West City, while Gerald LeTendre and Sally Lubeck collected the interview and observation data in East City. Foraker, Maldonado de Johnson, LeTendre, Lubeck, and Sanders shared their data with the author, and these data are reflected in this chapter.

In pursuit of information on individual differences, the author and his research colleagues conducted 33 interviews at high schools, 8 at vocational high schools, 27 at middle schools, and 27 at elementary schools. Of all the interviews pertaining to this topic, approximately 17 were held in West City and 10 in East City. In addition, approximately 34 classroom and general observations were included in the data analysis. Printed information obtained from schools, school boards, and other secondary sources was also integrated into research findings.

This chapter presents findings in four areas related to the topic of individual differences. One area concerns the perception people have about the important sources of individual differences in student learning. To what extent are effort and differences in ability seen as important to students' academic achievement? A second area deals with the ways schools and school districts respond to individual differences by creating tracks and programs and how teachers manage individual differences in the classroom. A third area is concerned with the attitudes people have about these practices. We wanted to know if people thought that these programs or practices were effective and fair. The fourth area of investigation was the attitude of people toward the education of students with either severe handicaps or special talents.

Overview of Ability Grouping and Tracking in the United States

American children begin formal schooling in the first grade at the age of five or six. The early years of schooling are characterized by classrooms where students with a wide range of abilities are taught together by a single teacher. Since elementary school teachers typically spend the entire day with the same children, they gain great familiarity with the individual abilities and personalities of their students.

In addition to the classroom teacher, federal law provides for resource teachers and special education teachers when students with handicaps or students from disadvantaged backgrounds are present. Many schools try to retain these students in regular classrooms during the elementary school years. As a result, it was not unusual for us to observe two or three adults in a single elementary school classroom.

In general, the American system of education supports a process of tracking students by ability, and most parents with whom we talked were supportive of providing instruction that parallels the academic level of students. However, a number of respondents expressed reservations about schools denying certain students the opportunity to learn on the basis of what are perceived as narrow measures of ability, such as test scores. These reservations were primarily explained in terms of concerns about the over-representation of certain ethnic and racial minorities in lower tracks.

In accordance with the desire to teach to the level of each student's ability, many elementary school teachers we talked with focused on individualized instruction rather than attempting to teach to a whole group. Pullouts and cooperative learning groups were also reflective of a preference for individualized instruction, as were the common practices of offering time for peer tutors and computerized instruction. Most teachers reported using these practices as a way to deal with individual differences in ability. In addition, elementary school teachers reported grouping students together for reading and for math exercises. Groups were stratified by ability level, allowing each group to receive instruction at its own level and to progress at its own rate. These groups were commonly used in the elementary schools we visited, and previous research has indicated that even in the first grade, more than 90 percent of elementary schools use within class ability grouping for reading and 25 percent use them for math instruction (Entwistle & Alexander 1993).

The transition from elementary to junior high school is one that may have far-reaching consequences. Beginning in junior high, students are no longer with a single teacher the entire day. Instead, they generally move from classroom to classroom to receive instruction in different subjects from different teachers. The school experience becomes more complex: students in junior high school interact with more teachers and more students than do students in elementary school. According to the results of a survey of middle-level school principals, two thirds or more of the nation's middle-level schools use at least some between class ability grouping (Braddock 1990). As we observed, the use of ability groups is especially prevalent in math. According to results from the 1990 National Assessment of Educational Progress (NAEP), school administrators reported 77 percent of eighth-grade students were grouped by ability in math. One-third was grouped by ability in science (National Science Foundation 1993).

In seventh and eighth grade, ability groups involve more than different levels of learning in the same subject. By then, course material is strongly differentiated and students at different levels take different courses. In general, instruction in low-track classes tends to deal with simplified topics and focuses on rote skills. The focus of high-track classes is on understanding of underlying concepts, problem solving, and independent thinking (Oakes et al. 1992).

In mathematics, students are typically assigned to one of three or four groups differing by level of ability, ranging from remedial mathematics to accelerated mathematics. Enrollment in the accelerated track is restricted by an array of school policies. Students in general mathematics are exposed to a curriculum that essentially reviews the content of elementary school courses and provides little challenge for average or above-average students. Because the general mathematics classes cover different topics than the accelerated classes, it is very difficult for students to catch up with the accelerated group and become eligible as 12th-graders to take calculus or other 5th-year secondary mathematics courses (Useem 1991).

Most of the school systems we visited began offering various levels of instruction in core academic subjects to students around the eighth or ninth grade, although a couple began earlier. Scores from standardized tests, past academic performance, and parental wishes were factored into the assignment of students to what were perceived as appropriate levels of instruction. Depending on the school, different weights were given to different factors: some schools emphasized test scores, while others emphasized parental wishes. In other schools the recommendations of individual teachers also had some influence over the tracking decisions.

High schools were organized similarly to junior high schools, with the level of instruction in high school courses being more closely linked with educational and occupational trajectories. To meet the widely differing needs of students, math and science courses were usually offered at different levels of difficulty. This pattern is supported by national data on the practice of tracking by level of ability. According to the 1990 NAEP, school administrators reported that by 12th grade, 74 percent of students were placed in science classes by ability, and 80 percent in mathematics classes (NSF 1993).

At the secondary level there usually are between three and six tracks (Vanfossen, Jones, & Spade 1987). In all tracking systems, judgements about students' academic performance are the basis for group placements. Classes and tracks are labeled in terms of performance levels of the students—such as advanced, average, or remedial—or according to students' expected postsecondary goals, such as college preparatory or vocational. The resulting groups or tracks are not merely a collection of different but equally valued instructional groups; instead, they form a hierarchy within schools with the most academic or the most advanced tracks considered to be the "top" (Oakes 1987).

Course offerings in the high schools we visited were generally considered either college preparatory, general, or vocational. A student's enrollment or assignment to a particular level course was often determined by their prior course selections, their grades, and their goals for higher education. High school counselors also played a central role in guiding students in making course selections.

In most cases students could take courses from all three of these levels, although students aspiring to attend college generally took courses that were either considered college preparatory or general-level courses, and they often took some of each. However, a national survey showed that 60–70 percent of 10th-graders in honors mathematics were also enrolled in honors English; the degree of overlap is similar in remedial mathematics and English (Oakes et al. 1992).

The proportions of students taking advanced-level courses varied from school to school. For example, at one of the high schools we visited most students were preparing for college by taking advanced-placement or honors-level courses, while at another school the majority of students were enrolled in general- or vocational-level courses. Most high school students were enrolled in general-level courses in math and science. These courses were not at the level of advanced-placement or college-preparatory courses, which would involve a year of calculus, nor were they at the basic level generally found in a vocational curriculum. Since most colleges will admit students who have a general education background, many students taking general-level courses aspired to attend college. Vocational courses were taken by students who intended to go directly into the workforce, but a number of students in vocational courses also had college aspirations.

Most selective colleges in the United States require for admission a minimum number of credits in core academic subjects and give extra points for advanced courses. For students with aspiring to these selective colleges, college-preparatory level courses were perceived as essential. Also available in some of the high schools were advanced-placement courses that allowed students who completed the requirements and passed the examinations to receive credit for college-level work before high school graduation. Only a small proportion of the students at the high schools we visited were taking advanced-placement courses.

These findings are in line with data published by the National Center for Education Statistics based on a national survey of 912 secondary schools. According to this survey of grades 10–12, 86 percent of these schools reported offering courses in their core curriculum that are differentiated in terms of content, quantity, or intensity of work, or expectations regarding independent work. In addition, these schools indicated that during the 1993 fall, term 14 percent of all 10th-graders took math courses designed for students of widely differing abilities (28 percent did so for English courses). The remaining 10th-graders were in math or English courses designed for more discrete levels of abilities. In math, 27 percent of students were enrolled in courses designed for students of higher abilities, 47 percent took courses for students of average abilities, and 16 percent took courses for students of lower abilities. In English, 23 percent of students were enrolled in courses designed for students of higher abilities, 39 percent took courses for students of average abilities, and 9 percent took courses for students of lower abilities. A majority of these schools also indicated that there was some movement of students between ability levels in math and English courses after 10th grade, with students moving up as well as down (USDE 1994).

In sum, we found considerable flexibility and variation in the way schools met the needs of students with differing levels of ability. Few restrictions were placed on whether tracking or ability grouping could be practiced at any grade level; consequently, most school districts that we visited were practicing some form of ability grouping and tracking, whether at the elementary, junior, or senior high level. As the student moves up in grades, tracking and ability grouping practices of schools become more numerous. However, these tracks were not widely perceived as limiting students' opportunities to attend college or to enter high status occupations.

Reactions to Tracking System

Reactions among respondents to tracking and ability grouping were mixed. Some respondents believed that tracking is useful, while others said that tracking was inappropriate for certain age groups or even harmful at any age. The beliefs were strongly held and some of our most lively discussions centered on the appropriateness of tracking. Among teachers and administrators, there was a clear demarcation between those who supported tracking and those who did not, and some respondents noted this as a source of friction. Parents, on the other hand, generally tended to support tracking and ability grouping.

The depth of feeling that we encountered about tracking is illustrated in a comment by the mother of a student at King Junior High School, a middle-achieving school in Metro City. The mother was describing her reactions after being told that her son would not be placed in a high-level math course.

> It's the public schools' responsibility to educate my child with respect to his ability. I told them, I come from a family of lawyers. If he tests for scholar's math, you have to put him there. You put him there today or I'll see you in court tomorrow. That evening the principal called me and said he was put in scholar's math.

Further conversations at King Junior High School revealed that the local school board was attempting to reduce the number of students in the high-level math classes in order to implement a detracking program. The parents with whom we talked did not support the detracking philosophy. A parent had this to say about the school board's policy regarding tracking and ability grouping:

> The present superintendent . . . . I don't think he has done much good for the district, frankly. My kids are out of that district and I'm very glad that they

> are out of there. The present board is very much against ability grouping. The board has this feeling that all kids are equal, all kids should be treated equal, and gotta be very sensitive to their needs, their social and emotional needs, and somewhere their academic needs gets left out. And to our minds, that has hurt a lot of kids because they aren't challenged. What they've done in the junior high system (King) was to take away all advanced classes except for math. My three younger children have gone through that system (King) and have not been adequately prepared for high school.

Although a number of teachers and administrators supported detracking, many favored tracking as a way to deal with individual differences in ability. In fact, one teacher at South Central Vocational High School argued for earlier tracking of students, especially for those from disadvantaged backgrounds, who are unlikely to attend college:

> I think somewhere in the sixth grade we should start molding these kids. I'm talking about channeling these kids. We are gonna say, you are going to be a carpenter. You see that's your first source. That's your creativity. To develop yourself. No one says you're going to be a carpenter your whole life. But there you have a position that gives you some self worth.

The following comment from a middle school teacher in West City was perhaps most representative of the majority of math and science teachers we interviewed. "Oh yes, it is a must. You have to separate students by ability."

In sum, reactions to the practices of tracking and ability grouping were quite varied. Parents tended to support tracking and ability grouping. Several administrators expressed preference for diverse classrooms, but many tended to support tracking and ability grouping. Most math and science teachers reported that it is difficult to teach classes with students who vary greatly in aptitude and interest in these subjects. Hence, they tended to support ability groupings, though with ambivalence.

Career Guidance

Ambivalence over tracking and ability grouping was also apparent in the ways counselors and teachers provided career guidance. While recognizing the need to provide realistic career guidance, counselors and teachers acted in ways that are consistent with ambivalence about closing doors of opportunities for students based on their past academic performance. Their focus seemed to be on encouraging current interests and desires.

Many students had high educational and occupational aspirations, regardless of socioeconomic background. One junior high school student with failing grades wanted to be a lawyer. Some high school students wanted to be athletes, doctors, and engineers. Many cases of similar optimism about career goals were found at schools in all areas at all research sites.

One student who was taking several vocational courses in math and science at Uptown High School in Metro City was enrolled in the metal works program for 11th-grade students. In addition to drafting, gym, and trigonometry, she was taking technical math, technical English, and machine shop. Her grades were average. Although these courses were not at the college preparatory level, she was planning to attend a 4-year college to become an electrical engineer. When we asked about the level of her course selections, she said that her schedule was rigorous enough to prepare her for college. In reality, the courses she was taking probably would not prepare her for the academic rigor of most engineering programs, which typically require high-level math and science skills.

In fact, like most students at most of the high schools we visited, the majority of students at Uptown High School were not taking courses that were sufficiently rigorous for selective 4-year colleges and universities. As the student described above, many students reported high educational and occupational aspirations, but these aspirations were not matched by an appropriate selection of academic classes or by their success within these classes. In contrast, students in affluent districts with similarly high aspirations were more likely to be taking rigorous courses. A number of these students were taking calculus and other advanced math courses during their senior year.

Encouraging students to hold high aspirations may have an important function. One parent of a low-achieving student encouraged her daughter's high aspirations as a way of maintaining commitment to school. Although her daughter was doing poorly in school, the mother of a girl attending Metropolitan School talked to us about how she encouraged her daughter's occupational aspirations:

> I told her she got to go to school, finish the eighth grade and go to high school. She got to finish high school. I told her don't be like your mother who dropped out. She tells me when she gets old she wants to be a doctor or a lawyer. I say you got to go for it. If that's what you want, you gonna have to stay in school. You have to go to high school and you have to go to college. I want her to have a college degree. I don't want her having babies.

Some of the educators we interviewed pointed to an acute need for career guidance for students who do not plan to go to college or who do not have special talents. In their opinion, schools need to provide more career guidance than is currently available to address the issue of individual differences. The principal of South Central, for example, argued that the low-achieving students at his school need to learn the value of regular occupations, so that they can learn to hold realistic aspirations:

> I know of a bus driver who sent five kids to college. He worked and was careful about spending his money. Most of the kids here think that driving buses is not where the money is at. They think of all the glitz and glamour.

The stories we heard illustrate how Americans value optimism, choice, and opportunity. This was manifested in the school setting in various ways, most notably in the area of college and career counseling. In the context of career guidance, this means that many Americans encourage aspirations for highly competitive occupations and are uncomfortable with programs that limit educational and occupational opportunities based on the economic background, achievement level, or the ability and talent of students. Many parents, as well as teachers, did indeed encourage high occupational aspirations in their children and minimized the role of individual differences in ability as an impediment to achieving these aspirations. Others, however, seemed to suggest that more realistic preparation for low-profile careers might serve the needs of some students better.

Perceived Sources of Differences in Ability and the Range of Differences Within the Classroom

While Americans are reluctant to close doors of opportunity to students based on individual differences in ability, the existence of these differences is openly acknowledged by teachers, administrators, and parents. Many teachers and parents talked about the substantial range of differences in ability among students in their schools and the difficulties the students encountered. The differences observed in the classroom were attributed to a variety of factors, but most respondents suggested that family life was crucial in explaining such differences. Family support was seen as essential to high achievement in the classroom, while low achievement was attributed to lack of family support, poverty, divorce, abuse, and neglect. The negative effects of poverty and social inequality on issues concerning family support were central in discussions of individual differences in Metro City and West City and, to a lesser extent, in East City.

The emphasis on the family in explaining individual differences in ability is especially interesting, because we usually asked respondents to consider the relative contributions of innate ability and effort, without directly asking about the impact of the family. Innate ability and effort were also considered important factors by many respondents, but these were seen as byproducts of family support. Once respondents mentioned family support, we usually asked them to elaborate, and the semistructured interview format allowed respondents to reply in depth.

The following was a typical response to the question about the origins of individual differences given by respondents from all socioeconomic levels:

> I think that it is a combination of the two (innate ability and effort)—a little of both. Culture is very important at Uptown, but I think that the most important thing is family support. For example, I just heard about a Down's syndrome child who graduated from college. Well, he was able to do it because he had a lot of family support. (English teacher, Uptown High School)

Similar views were held by teachers, parents and students; the emphasis was typically on the role of family support.

Teachers' Views

Several teachers cited family stability as the primary explanation of the differences in achievement they found in their classrooms. A comment from a science teacher working at Hamilton High School in Metro City illustrates this point:

> When I look down at the parents' names for my honors kids, it's Mr. and Mrs., same last name as student. Twenty-two out of 24. And if I go down my list of regular students, maybe four. Now, you know, that's not saying that it's bad, you could have, you know, a good parent who is remarried. Just because the last names are different doesn't mean something terrible is going on. But, just as a trend with the regular students, they don't have the same last names as the parents. You tend to get your typical American family in your honors courses, and your newer family structures with the regular [courses].

Many teachers stated that stable families and strong family support for education were the critical ingredients for success in school. A teacher at East Middle School echoed this theme when asked about the factors in creating individual differences among students in her classroom:

> The other big difference, and I hate to use the term, is the breakdown of the family. Most of the children, even here, are not living with two biological parents.

This teacher described one way that she felt divorce could negatively affect the academic achievement of some students:

> Some of them are playing one parent off against the other. Let's see how bad I can be with Mother so she'll let me stay with Dad longer, and this is not fair to Dad, but let me stay with Dad so she'll give up and let me go to Dad's. He doesn't have as many rules as Mom has. Homework is not monitored as closely. That kind of thing. Or, I'm with Dad, let me see how aggravating I can be so he'll give up and send me back to Mom. And, they're not in some cases doing it intentionally. They're not bad kids. They're just frustrated and if they come to us with all this baggage from home, it's difficult to learn in the classroom.

Family support was also cited by teachers in highly affluent communities, such as Rolling Hills and Lakeside. In these communities, teachers reported their belief that a high level of parental involvement contributes to the high level of achievement of many students. In the words of one teacher:

> A lot of the mothers do volunteer work or help with the PTA. The PTA here is incredible. The way they are involved! Moms are here everyday. They help with the first-day classes. When I see a mother, I say to myself, "There's a mom with too much time on her hands." The mother will say something to me like; "I disagree with the way you graded Johnny's homework 3 months ago." (Teacher, Vanderbilt Middle School)

Teachers in poor communities also focused on the family and social environment in explaining individual differences and academic success. One teacher at Parks Elementary School in Metro City estimated that 90 percent of the students live in nonintact families, most without fathers and many without mothers, and she blamed these figures for the comparatively low performance of most of the children at the school.

While examining the classroom attendance sheet with the interviewer, the teacher explained her views about how differences in home environments create individual differences in ability:

> I think a lot of it has to do with their home life. I think almost all of them are on welfare. A lot of them don't live with their parents—either one. R is living with her stepfather. S is living with her aunt. You can go down the list. M, her mother is one of those; she is in one of those home-alone situations, where the mother is never really there. J is in a homeless shelter. E has one parent. B, we think, might be abused. R has been abused. D is being taken care of by her grandmother. R has two parents at home. So does X. J, L, and A do not. J has both parents, but they live in a shelter. L lives with his grandfather. So these kids are not coming from your typical home.

Other teachers noted that some students have families of their own to support and that this affects their academic performance. Teachers at Uptown High

School, indicated that many teenage girls drop out of high school in order to take care of their children. More than 75 percent of girls at South Central Vocational High School drop out of school, primarily because of pregnancy. The principal of South Central told us:

> Some of the girls have two or three babies. Childcare responsibilities make it difficult for these girls to attend school regularly and that explains the low rates of attendance among female students at South Central.

At the schools in West City, a number of students indicated that they care for siblings. This was considered to be a factor in the lower academic achievement among certain groups at the school. Overcrowded living conditions were also seen as adversely affecting academic performance.

A middle school teacher in West City offered a typical explanation for the source of individual differences:

> I would say their home life. If they had the support—even if it were one parent—really backing up the teacher and supporting the teacher and pushing their kids to continue their education, they will. They will succeed. But if they do not have that, and they do not have the continuity. If they have the continuity, they can do math, even though it is harder. We have kids who are from the shelter, and the fact that they still get that support there that helps them a lot too. It is a lot harder for them because they are really in an unstable situation. I think it is the continuity and the parental support.

Overall, individual differences among students were most often attributed by educators to the family environments and family responsibilities of individual children. Differences in innate ability or effort were not spontaneously offered as explanations with any frequency. Teachers stated that high-achieving students were more likely to come from stable families that support schools and that negative influences, such as unstable families, divorce, abuse, and other social problems, were responsible for the low achievement of some students.

Parents' Views

Parents also focused on the family, although other explanations were also mentioned. Some parents expressed the belief that individual differences in academic achievement result from a combination of both innate ability and family support, as did this mother of a Rockefeller Elementary School student:

> Well, I believe in nature and nurture. I happen to have two very bright children for whom I take very little credit. A lot of that is genetic. On the other hand, I chose to stay home with them and there is a lot of nurture there and we have chosen to live here, because we value education so highly. A great

> number of our decisions are based on our children, on providing experiences for them. Not just education. We are providing the environment because we feel that is a very important thing. On a personal note, we waited a long time to have children. We both had careers and did a lot of things before we decided to have children. When we both decided to have children, we then decided that that is where our energies would go. We have provided a lot of nurturing and there's a lot of difference between families who are able—lucky enough—to be able to do that. There are wonderfully intelligent children all over who just don't have the opportunities we have because of the schools and family situations. I've been very lucky not to have to work at all through the kids' formative years.

Later, suggesting that her belief in the importance of family support in generating individual differences was not central, this mother elaborated her belief in the importance of innate ability and genetics in generating individual differences in the following statement:

> Students in this district perform really beautifully, wonderfully, way above average. If everyone's parents are brain surgeons, then it's pretty likely the gene pool is going to create children that are going to do well and so test scores are excellent. I don't place a great deal of emphasis on test scores, but you will find that all along the districts in this area the kids are above average.

Notes from an interview with a parent at Midtown were more typical of the parental attitudes we encountered:

> She talks about how a lot of children are experiencing parents divorcing and this sometimes worried her kids. But she feels her children feel secure that she and her husband will stay together. Family plays a large part in how children succeed in school.

Parents in poorer communities also looked to the family as an explanation of individual differences. Family disintegration, along with drugs and other social problems created by poverty, were frequently cited by parents in these communities as explanations of low achievement.

Indeed, observations at Parks Elementary School in Metro City during parent-teacher conference day suggested low parental involvement in school. In fact, the school was passing out small gifts of candy and magic markers as incentives for parents to come to school to pick up their children's report cards. Despite these incentives, one teacher estimated that fewer than 10 percent of parents would visit the school.

Students' Views

Although students may lack the broader social perspective of parents and educators, students also believed that family support was central in explaining individual differences among students. One student at Uptown High School located in Metro City gave the following explanation—one that was astute for a teenager—for why some students do poorly in school:

> It may be that the poor-performing students have family problems and when they come to school, their minds are more on those problems than on school. I mean a lot of students have parents who are divorced or are troubled, and if their parents don't help them to see a bright future then I guess they don't see any reason to study.

Low achievement in these poor communities was also attributed by one student to a lack of individual effort, but again family support entered into her explanation. This seventh-grade girl responded in the following way when asked about the origins of individual differences.

> I don't know. I think sometimes it's because some kids, they just don't feel like learning it or something, or I know some of my friends they're just not very good at it, so they don't try real hard to get good at it. And, also, some kids have their parents to help them, like with math, if their parents are good at math. So that helps, but some kids don't want to ask their parents for help.

When asked to give a reason why someone might not do well in math, this student responded:

> Cause they don't try hard. They don't listen. They don't do their work and don't turn in the work. They don't ask questions when they don't understand.

All in all, family support was given great emphasis as the central source of differences in ability among students by parents, teachers, administrators, and students. The quality of teachers or other factors related to the school were seldom cited spontaneously as important sources of variation in individual differences in ability or achievement. Innate ability and effort were also referred to as factors, but these were exceptions to the general pattern of suggesting family support as the most important source of individual differences in achievement among all types of families.

Strategies for Dealing with Individual Differences

The range of individual differences in ability among students within a single classroom is a daily pedagogical challenge for teachers, and the math and science teachers we visited were no exception. At the school level, administrators are faced with the task of providing programs that address students with a variety of needs while maintaining equity and equality of access to all. However, placement in tracks is influenced not only by students' characteristics, but by school characteristics as well. Each school's practices of scheduling and grouping are affected by such local constraints as the availability of human and material resources for instruction, the demographic makeup of the surrounding communities, and the educational philosophies of administrators and teachers (Braddock 1990).

Teachers at schools where students were performing at average levels for the state reported a wide range of students in terms of ability and interest. A teacher at such a school described the classes she teaches in a way that captures the essence of challenge almost all teachers reported facing:

> My first and second period runs the gamut, from A-plus, excellent students to people who come maybe once a week. That is a range! This class—an honors class—there's a range of ability all right, but it's not nearly that great. There are some students in here who are in there because their parents or their deans call them honors students, and if you are an honors student, you take mostly honors courses. So there are a couple of people in here who would probably be better off in regular class, but for some reason or another they are in the honors class. There are some students in here that are very bright, but are lazy. But they're honors students, too. There are some students in here who aren't as bright, but they work very hard, so it may not be intuitive for them, but with effort they match the achievement of the ones who are brighter. Then, there's the people who are both bright and hard working, and they do great. (Physics teacher, Springdale High School)

To deal with this range of abilities, this teacher said that she tried to teach to the middle level of abilities in each classroom to the extent possible. In fact, the majority of teachers we talked with reported using such a strategy. This teacher shared the concern of other teachers that by teaching to the middle, the brighter students in her classes would become bored and the slower students would not be able to keep up with the material. She saw no perfect solution to this dilemma, but she viewed tracking and ability grouping as reasonable strategies to minimize the range of difference within a classroom. By tracking students, she felt that it would be easier to teach to the middle, since tracked classrooms have smaller ranges. Nevertheless, she said she believed that even tracking is limited in usefulness, since there will be variation within any classroom of large numbers of students.

A teacher at Vanderbilt articulated the strategies that most teachers we interviewed and observed employed when there were students with a range of ability in the classrooms, a situation that math teachers said was typical:

> Well, I think it is far more complicated for math, where you either know it or you don't. In English, you can always write something, even if you skipped something before. You can't do that in math. It's hard in math, because there are kids who struggle in classes where other kids catch on real fast. Even though we have different levels of classes, we have these problems. Like in the general algebra class, you have kids who just missed the cut-off for advanced algebra class and kids who aren't even close. It's a struggle. The way I deal with it is that the kids who are doing poorly come in for extra help or sign up for the math assistance class. And for those who do well, you give them cool problems before class or after class to make them think. Within the class, I know that there are kids who are bored silly and those that are drowning. And I encourage kids to ask questions. I also encourage kids to express their solutions. Some kids may do it differently and be four steps ahead of everyone else. I would have him explain it to everyone. Then, I would ask another kid to give his solution. Then, I would tell the solution that would always work. That way, the kids learn something.

Age-Graded Classrooms in Elementary Schools

Elementary schools rely on the use of age-graded classrooms as the primary way to limit the range of abilities within a single classroom. Every elementary school that we visited had age-graded classrooms. However, some teachers reported problems with the age-graded classroom as a way to deal with individual differences. Even teachers in affluent districts where students are from homogenous backgrounds reported that teaching math in an age-graded classroom presents difficulties in dealing with individual differences.

To address this concern, one school was experimenting with classrooms that included students of different ages. This elementary school located in West City had many students with limited English-language proficiency and minimal experience with school. Some students had just arrived in the United States and had never been formally enrolled in school. To manage these kinds of students, the school district in which this school is located had restructured some elementary school classrooms so that students were placed with students of similar levels of achievement, rather than of similar age. A teacher at this elementary school regarded this program highly, observing that it helped recent immigrants become integrated into the school.

Individualized Instruction in Elementary Schools

Teachers in elementary schools often worked one-on-one with students during group work time. We frequently observed teachers walking around the classroom helping students individually. Assistant teachers were also present in many classrooms, and their role was to work one-on-one with students. In one case, a single assistant teacher was assigned to a severely handicapped girl who was mainstreamed into the regular classroom.

Individualized instruction also occurs when subgroups of students are periodically taken out of the regular classroom to receive accelerated or remedial instruction in basic subjects. For example, during math lessons, students who were unable to keep up with the regular lesson and those for whom the regular lesson was too easy could go to a different teacher to receive instruction that was more appropriate for their ability levels.

We observed these pullouts for math and language arts, but we did not observe any pullouts for science. Teachers explained how ability differences in math and language arts are more pronounced than in science, because science is a subject that does not require all students to be at the same level. Participation in science in elementary school is for the most part not based on cumulative knowledge, as is the case with math, and there is a heavy emphasis on experimentation. Although the degree of understanding of the experimental results may differ, students from a wide range of ability can still successfully conduct the experiments in the laboratory periods in science.

Computers and individualized instruction in elementary schools. Technological advances are changing the ways schools deal with individual differences. Although uncomfortable with the many new advances in computer technology such as the internet, educators were generally optimistic about the potential of computers to help them deal with individual differences. Many educators reported that they used computers as a way to individualize instruction and manage individual differences in ability. They cited how computers can be used to match the level of each student, for example, in providing spelling and reading drills for students in need of remedial instruction. Students who were gifted could also progress at their own pace. Several teachers also mentioned the added benefit that students seemed to enjoy working with computers and that some computer games had an educational component. Software for math, spelling, and reading drills were frequently used by students.

In spite of the perceived benefits of computers, the availability of computers varied greatly from school to school. The poorest schools had the fewest computers. Parks Elementary had only one computer per classroom, and they were outdated and lacked the power to run most educational software. In contrast, later models and a greater quantity of computers were more typical at the schools we visited in affluent districts. Some regular classrooms had four or five computers, some of them recent models. Rockefeller Elementary, located in the affluent suburb of Lakeside, had a computer room with several dozen computers, and Vanderbilt Middle School had a whole computer room for student use.

Tracking and Ability Grouping

In almost all schools at the junior and senior high school level, tracking and ability grouping were the primary ways that schools dealt with individual differences among students. Every school that we visited practiced some form of tracking and ability grouping. Even in schools where tracking was not favored by the administration and the local school board and where detracking was the favored policy, core academic subjects such as math and reading were tracked. This system of tracking seemed to be the compromise reached between parents who supported tracking and an administration that did not.

Like all other practices, tracking systems across schools varied in terms of the numbers of levels offered and the subjects tracked. To gain a complete picture of tracking and ability grouping in our sample, it would be necessary to describe the practices at each school, something that is not possible here. Instead, we present here the practices of two junior high schools in the sample to represent a school that had only two levels of tracking versus those that have four or more levels of tracking. The schools selected did illustrate the issues involved but are not intended to imply a causal relationship between organizational structure and community characteristics.

Metropolitan School. Metropolitan School is located in the inner city of Metro City. Students at Metropolitan were tracked in math and reading into regular and accelerated classes. The program was called the accelerated middle school. Students were not selected into the accelerated program on the basis of test scores and past performance, but were admitted to the program if their parents or guardians signed contracts stating that they would comply with a daily homework requirement. The homework requirement involved students completing homework every day and, to ensure family support, parents verifying that the homework was being completed.

Since only a handful of the highest-achieving students at Metropolitan School were achieving at grade level, the accelerated middle school included many students achieving below grade level, according to statewide tests. Teachers said that the goal of the accelerated middle school was to separate students who were willing to work from those who were not. As one teacher at said, "This is a program for those students who are willing to do their work." In other words, the accelerated track at Metropolitan School is not based strictly on merit, but seeks to take advantage of the strong family support among a small group of students.

Vanderbilt Middle School. Vanderbilt Middle School is located in Rolling Hills, an affluent suburb of Metro City. In contrast to Metropolitan School, there were several levels of courses in reading, writing, science, and math. Altogether five levels of math were offered. Further, there were strict requirements based on performance for the math program, and only the highest achieving students were admitted to the highest levels. The work habits of students and the wishes of parents were not given precedence in the decision to place students in the various levels.

In spite of these strict entrance requirements, both parents and the administration in the Rolling Hills district expressed support for the tracking system in math and other subjects, basing their support on the idea that high-achieving students need to be challenged. In fact, one junior high school math teacher indicated that she found complete support from the administration and parents when she proposed initiating a new level of math in the curriculum. She added that the unusual receptivity of the district to tracking is one of the appeals of the Rolling Hills district for a math teacher.

These two examples illustrate how two schools within the same city can have entirely different approaches to tracking. At Metropolitan School, parental interest was the primary factor in the decision to enroll a child in a high-level math and science program. In contrast, test scores and other objective measures of achievement were the primary mechanisms for allocating students to high-level courses at Vanderbilt Middle School.

Cooperative Learning Groups

Cooperative learning was perhaps the most common practice that we observed teachers using to deal with individual differences in ability. Most elementary school teachers and a number of junior high school teachers in the three cities we visited practiced some form of cooperative learning in their classrooms. In cooperative learning the class is divided into groups of four or five students of varying ability, who sit together, apart from other groups.

Teachers with whom we talked explained how they believed that these cooperative learning groups facilitate the interaction of students and allow for peer tutoring during classroom time. Teachers typically reported grouping high-achieving students with low-achieving ones. High-achieving students were expected to help slower students, and teachers often assigned projects that required cooperation among the small groups of students.

A teacher at West Middle School explained her support for cooperative learning groups:

> I really believe in the hands on approach. I believe that all students do not arrive to me with the same level of readiness. That is why I think group learning is really good for them. Peer coaching goes on within a group. And students, if you make them comfortable with a new group, they will help each other out.

The support for cooperative learning extended across research sites. A parent of a student at a middle school in East City explained the cooperative learning approach of teachers at the school:

> It's strictly intermixed, because their philosophy is that the slower students can learn from the faster students. And the faster students enjoy helping the kids that do not have as strong a background as they do. Sometimes that can encourage a mediocre student to do better—when their peers help them as opposed to an adult.

In assigning students to groups, teachers reported considering the personalities of students as well as the academic level. One teacher emphasized the importance of grouping students who are leaders with those who are more likely to be followers to avoid the organization of groups that have no leaders.

Some teachers also created situations in which these cooperative groups would be competing with other groups. For example, after assigning the same tasks to the five groups in her classroom, one elementary school teacher announced to the class which groups had gotten the correct answers and which had not.

While teachers were typically favorable toward cooperative learning groups, several parents were opposed to the practice, because they believed it might hinder the progress of high-ability students. Referring to cooperative learning, a mother at Midtown Elementary, a school in a lower-middle and working class community in Metro City, said, "Public schools are inferior, because they lump kids together rather than separating them by ability or tracking them." In unequivocal terms, she indicated that she was opposed to cooperative learning and resented the fact that her two children were expected to teach other children to read and that her children received grades for work that was done with other children.

Likewise, two parents at King Junior High School in Metro City insisted that peer tutoring and cooperative learning were detrimental to the academic development of their high-achieving children. One parent referred to a study demonstrating that "bright kids do not benefit from teaching slower learners." Continuing her criticism of cooperative learning, she referred to a joint project for which her daughter received the grade of a C. The mother claimed that the poor grade was the fault of the less capable child, whom the mother described as a poor speller and worker. "Why should my daughter get a poor grade because of this other student?" asked the mother.

Tutoring

Tutoring programs were also administered by schools as a way to deal with individual differences in ability. In some cases, students also sought out tutoring on their own, particularly in more affluent districts. At many schools we visited, students who needed help in academic subjects could receive help either from teachers or from fellow students who excelled in these subjects. This took place during the school day or for short periods after school.

At Vanderbilt Middle School, for example, students could receive help from peer tutors anywhere from 15 to 30 minutes a day. Teachers also reported staying after school to help students. Peer tutoring was seen as benefiting both the fast learner by reinforcing this student's knowledge and the slower learner, who may find it easier to ask questions of a peer than of the teacher.

Although schools in poor districts also had tutoring programs, these programs were modest in comparison to those of the affluent schools we visited. One reason may be that fewer high-achieving students are available to tutor their peers. Another factor was that teachers in schools serving disadvantaged families seem less willing to tutor students after school in neighborhoods that are perceived as dangerous. For example, in our visit to one inner-city school, we were advised to take a taxi to and from the front door and to leave the school well before dark.

Question-and-Answer Periods

One very commonly observed teaching practice in the classrooms we visited was the question-and-answer period. During these periods, teachers ask students a series of questions in rapid-fire succession. We frequently observed students jump up and down with their hands raised, eager to be called on. Teachers believe that these sessions allow individual students to contribute at their own level of ability.

We observed this practice in many classrooms we visited. There appeared to be differences in how effectively the question-and-answer format was employed. At Parks Elementary School, one teacher embarrassed a student, who had the correct answer, because the teacher thought that the student had guessed instead of working out the problem. At Rockefeller Elementary School, a math education specialist with a Ph.D. visited classrooms several times a week to conduct question-and-answer sessions. These sessions were fast-paced and rich in content and had been developed over many years.

Homework

The assignment of homework was another way that some teachers dealt with individual differences. Many teachers said that homework was essential to allow students to practice what had been taught in class, to allow the slower learners a chance to practice materials at their own pace, and to permit slower learners to complete work which others were able to finish in class. Teachers in elementary schools also said that they believed homework provided them with a good mechanism for giving students fairly immediate and frequent feedback. In that way, students who were having more difficulty could receive individual attention or be recommended for "homework club" or tutoring available through the school. At Midtown Elementary School, one teacher said that she adjusted homework assignments somewhat to accommodate students of different abilities. She allowed children who worked fast and wanted to do more to earn extra credit for additional work. These students could choose from a variety of "extra credit things" she made available. In addition, she noted that she regularly modified spelling lists for two children in her class and modified almost everything for a boy who had moved to the school from the inner city. At Rockefeller Elementary, a teacher said this about her homework policy:

> I don't want my kids going home and being frustrated . . . . I find when there is more flexibility, they are much more willing to try things and to stick to things. And I'm very respectful when my children come in and say I could only do this much then it got too hard and I had to go play, because I want to talk to the children about it if it's too hard, so that they can feel like they can have some sense of control over it.

In the middle years of schooling, the different levels at which subjects were taught functioned to differentiate the homework materials, but teachers also adjusted the way in which homework was used to accommodate different behavioral characteristics of children in the different course levels. A teacher at King Junior High, like many of the other junior high and middle school teachers indicated that homework was required of students and the amount increased in the higher-grade levels. However, this math teacher also said that she allowed her students in prealgebra to do their homework in class, while she required her prealgebra 2 and scholars math students to do their homework outside of class. She said that the purpose of homework was to allow students to practice, but that her kids in prealgebra needed the extra over-sight to get theirs done because they "couldn't keep track of their stuff."

Some teachers argued that assigning homework increased inequalities among students, because some parents could help their children with homework and other parents could not. One elementary school teacher said that she believed that homework should not be assigned because it increases the effect of family background on individual differences in ability and achievement. These teachers preferred to give students time during class to do their homework. At Parks Elementary School, located in one of the poorest communities in Metro City, a policy of the local school board is for teachers to assign minimal homework. A teacher at Parks described the school policy and her differences with it.

> But the thing is—this is a school that doesn't believe in giving a lot of homework, and I'm a firm believer that in math, you have to do homework and you have to practice it.

At South Central Vocational High School, teachers said that many of their students did not have a quiet place to work on homework and that many students left their books in their lockers, because they didn't want to be seen on the street with a book under their arm. As a result, very few teachers at South Central assigned homework to be done outside of class.

The lack of homework assignments in some schools generated criticism from parents who felt that their children were not being challenged enough. One parent was greatly troubled by the lack of homework for her son, a student in the accelerated math class at King Junior High School:

> Since when is homework done in school? If these kids can spend so much time in school doing homework, I'm wondering when is the schoolwork being done.

Some teachers also found the lack of homework to be a concern when the school's policy was minimal homework, as was the case at Parks Elementary School. One teacher at Parks had this to say about the policy:

> The local school board, the lady from the local school board, she pretty much sets the policy for the school. And her work goes like this—she told a fourth—grade teacher here that she gives too much homework. The lady said because the kids can't get help from their parents. And that's her philosophy: Kids

> can't get help from their parents, and so they shouldn't have a lot of homework. But that's wrong because homework is reinforcement of what you learn. And if you have a problem, the next day come in and get help on it.

It was evident that some schools and some teachers were better at communicating their expectations regarding homework to students and parents. Although most schools had written homework policies, a few said that their homework policy was informal and that most teachers assigned homework as an instructional tool. Classroom teachers often had their own reasoning for how and why they used homework.

Grading and Evaluation

The practices and policies in grading and evaluation reflected of attitudes and beliefs about individual difference in ability among students. At Parks Elementary, the local school board and principal had adopted a policy of leniency in grading and evaluation. The conflict generated over grading policy between teachers and administrators was evident during our interviews and observations. One teacher was protesting what she perceived as the principal's advocacy for lenient grading by giving the same grades she would have given prior to the installation of the new school board and principal. She was worried that it might get her fired, but she could not bring herself to give grades that she believed were undeserved.

The fears of this teacher about her job were not unfounded. The principal clearly was upset with the grading practices of teachers at her school.

> I look at all the report cards because I want to know how people (the teachers) come up with grades, and I want to make sure that they (the teachers) don't call the kids scumbags or something.

In contrast, several parents as well as teachers expressed outrage over the lenient grading policy adopted by schools such as King and Parks. For example, the mother of a King student made the following comment about the school's grading and evaluation policy:

> Our school is trying to make everyone feel successful, so they make it so that everyone can get a star. But the kids don't feel good about that. They know that they aren't doing anything. So you are getting a lot of this psychobabble from the school about how tender these sixth, seventh and eighth grades are.

The following example illustrated the depth of feeling concerning grading practices. Teachers at Parks Elementary reported being frustrated by grading, particularly when students were performing poorly. A teacher described the implementation of the school's policies:

> I assess them based on homework, and I've gotten in trouble for that, because they said that the students cannot control that, that they can't do it at home because their home isn't stable. So now I don't count it at all. One time we had a teacher who gave the kids the grades they deserved. Here, the principal has to look at your grade book and report card. So the teacher submitted hers, and she had all her information backed up, that these kids deserved these grades. The principal made her go back on the day of the report card pick-up and white out these grades and change them. They were very low grades. You'll get reprimanded if you give really low grades, even if the kids deserve them, if the principal feels that they're . . . . This school is about helping their self-esteem. It don't matter if a kid is screaming and cursing in class, or hitting the teacher, that's not important. We don't want to hurt their self-esteem by suspending them. I mean there is nothing wrong with building self-esteem, but they're also not learning responsibility.

Parks Elementary was not unusual in its lenient grading policy. The local school board and administration at King Junior High School in Metro City also favored a lenient approach. In order to de-emphasize grades, the administration at King forbid the posting of an honor roll.

> There is no honor roll at King, because they [the administration] are afraid that kids will not feel good about themselves. They don't want good children to stand out. (King mother)

The schoolwide policy also was apparent at the classroom level in the grading practices of individual teachers. During an observation of the eighth-grade math class for advanced students at King Junior High School, the teacher told the entire class:

> I am happy to report that 17 out of 25 students are running an A-plus average. Good job! I think more of you can get A-pluses.

This teacher made it possible for students to receive these grades by allowing them to take exams with open books and notes and to resubmit assignments until they answered everything correctly and received the top score of four.

In sum, grading and evaluation were central concerns of parents and teachers with whom we spoke. Some were advocates of lenient grading or grading less focused on test scores, while others argued for tougher standards in grading.

Special Problems in Urban Schools

Teachers in some of the low-achieving schools that we visited did not cite any substantial variation among students within a classroom, but instead reported problems dealing with individual differences that were different from the problems faced at typical schools. Many of these teachers indicated that performance was uniformly low among their students. Instead of teaching to the middle, these teachers indicated that they spent most of their classroom time trying to discipline students or provide emotional support to students. These teachers attributed the generally low ability and interest of students to lack of discipline and to abuse in the home. Absence from school was also a major problem. While these schools are not typical of American schools, the descriptions here reveal some of the problems faced by teachers in the lowest performing urban schools and how these problems supersede the problems of dealing with individual differences.

Poverty was perceived as the primary cause of the special problems of inner-city schools. This was true across research locations. At West High School, a teacher estimated that 40 percent of the students were in families receiving Aid to Families with Dependent Children and a large fraction of the remaining 60 percent were also in need of assistance but were not receiving it because of lack of documentation about citizenship (a number are in the country illegally).

Low Attendance

Low attendance was a problem cited by educators in inner-city schools. The principal of South Central said that attendance was the main problem facing the school:

> Fifteen students will show up 1 day. A different 10 and the same 5 may show up the next day. And a completely different 15 will show up the next. This makes instruction very difficult, and it is the number one complaint of teachers at South Central.

A math teacher at South Central Vocational High School elaborated on how instruction is slowed down by poor attendance:

> I have only covered three chapters in 8 months. The kids are real slow in learning. I would expect that average kids would be able to do five or six problems at home so I would only have to spend a week on them. With these students, I have to spend a month. I have to repeat material often because different students attend each day.

Discipline

The lack of discipline in the home was a major concern of teachers in inner-city schools and a theme that came up again and again in our research. A Park Elementary fourth-grade teacher said that he had kids whose immigrant parents had never been to school themselves, so he wondered if they knew how to prepare their kids for school and tell them what to expect and how to behave. One science teacher at Metropolitan School in Metro City linked family disintegration in the inner city to the discipline problems she was having with her students. This teacher stated her belief that many inner-city parents do not teach their children how to sit still in class and listen to the teacher's instructions. Hence, she feels that she must spend most of her time disciplining students rather than teaching them.

The following exchange between this science teacher and a student occurred shortly after an interview. The observation involved an honors student in a science class at Metropolitan School.

> A student who wants to work with Jeff on a project for class is assigned by the teacher to another student named Jose. The student begins working with Jeff anyway.
>
> Teacher: "Not with Jeff. Find someone else."
>
> Student: "What difference does it make?"
>
> Teacher: "It makes a difference to me. Why don't you take Jose."
>
> Student [walking away]: "Cause I don't want to."
>
> Teacher: "Excuse me? Why don't you take Jose."
>
> Turning to the researcher, the teacher explained, "This is what I deal with every day, a total lack of respect and discipline."

One way that this teacher dealt with such disruptive classrooms is through tough standards of behavior. Metropolitan School supported teachers such as this one in their efforts to maintain discipline in the classroom. In fact, a mother had her daughter transferred to Metropolitan School because of its reputation for discipline:

> My daughter was really getting out of control. So what I was trying to do was to talk to youth officers and social workers to try to keep from losing my daughter to the streets. Because she tried to come in when she felt like it, and I don't want her coming in like that. If you don't rule your kids, they gonna rule you. They gonna disrespect you.

Discipline was also emphasized at Hamilton High School, a predominantly upper-middle-class high school. However, the large working class minority population tended to be the target of the disciplinary measures. One such measure was the school detention center. Students at Hamilton High School who had misbehaved in class were sent to a detention center in the school. On any given day a dozen or so students were detained at the center. The detention center was meant to be an austere experience, and during the winter months, the large classroom was heated by a tiny space heater. Students had to wear jackets to keep warm.

Other Concerns and Issues

Although the lack of discipline among students was considered to be a major problem in inner-city schools, many educators indicated that physical and sexual abuse contributed to far more serious and irreparable damage to the academic achievement of some students in these schools. According to the principal of South Central Vocational High School, many of the behavioral and learning problems of some of the students at the school are the direct result of physical and sexual abuse by adults at home and, in certain cases, even at school.

Educators and administrators at schools located in impoverished areas also referred to the constraints placed upon instruction of high student mobility, a feature typical of poor communities. It was not uncommon for schools in the inner city to have more than half of the student body change every year. Schools where there was high student mobility needed to test large numbers of students each year if enrollment in classes at different levels was based on student mastery of the subject. Complicating the problem was the fact that many students moved into the school district after the beginning of the school year. Thus, testing for placement into tracked courses created an additional burden for financially strapped inner-city schools. Furthermore, since the curriculum differed from school to school, students who moved frequently were at a disadvantage in gaining admission to high-level academic courses.

At West Middle School in West City, a math teacher indicated that only 20 percent of her students the previous year completed the entire year. Many of her students move back and forth between Mexico and the United States move for economic reasons. Explained the teacher:

> I have some kids who are coming who are recent arrivals. I have a girl who sits here who came from Mexico a few months ago, and she is functioning at a fifth-grade level in Spanish. She is advanced. She knows fractions, everything. And she has a great vocabulary and grammar in Spanish. But she has no English. Whereas, I also have a kid who just arrived from a small town in Mexico where he never attended school. All these levels I have here.

Summary

In the inner-city schools that we visited, teachers reported great difficulty in managing ability differences among students within classrooms. These teachers suggested that the preponderance of social problems in the inner city contributed to the diversity in levels of ability and hindered their ability to teach the curriculum in a way that would reach and benefit all their students.

Gender Equity in Math and Science

Gender difference is an area where individual differences in ability and achievement have often been observed in the United States. Males have traditionally taken more math and science courses than females and are overrepresented in occupations that require advanced knowledge of math and science. In spite of this pattern, many of the respondents stated that there was no gap between girls and boys in math and science achievement. Science and math teachers, on the other hand, did perceive significant gender-equity problems and they talked freely with us about their concerns.

We observed one type of gender gap in math and science achievement at a number of schools in the numbers of students taking advanced courses in these subjects. Females were underrepresented in higher-level math and science courses at Hamilton High School. A female science teacher at Hamilton High School explained what she believes is the typical pattern of gender inequality in high schools throughout Metro City: "AP (advanced placement) is the creme de la creme. But a lot of girls don't continue on in AP, so I've got concerns about that, about our gender-equity standards." The higher-level math and science classes at Springdale High School in a middle-class area of the city were also predominantly male.

One explanation given by teachers for the smaller number of girls in upper-level math and science courses was that male teachers are far more numerous in these courses and therefore girls are less comfortable taking these courses. Role models are fewer for females than for males in science and math. In fact, one teacher indicated that until 4 or 5 years earlier, no women had taught AP science courses at Hamilton High School, although at the time two women were teaching teach biology, one of whom taught advanced-placement classes.

Although at the time a great deal of attention was paid to the gender bias among teachers, gender bias has a long history, as the following quote by the above teacher underscores:

> In fact, when I first started teaching, the man who had taught chemistry and physics for 18 years gave the girls 20 extra points at the beginning of the semester, like a handicap. We've come a long way. And that was only 20 years ago; that was in 1977. We are not even talking the 1960's here. But he thought girls were at a disadvantage, so he gave them extra points.

There were also teachers who did not perceive gender-equity problems. A male math teacher at Hamilton Township High School had this response when asked about the existence of a gender gap in math and science at the school:

> No, you know that comes and goes. This year I have more males than females in my advanced calculus course, and it makes me real nervous. But that is generally not the case. We have had more girls in the past than boys. I don't think that that is a problem. Now, I'm a male teacher and I may be a dreamer. I don't perceive this to be a problem, but another person might.

In accordance with this teacher's assessment, a female high school student at Springdale High School, located in a suburb of Metro City, said that girls were not discouraged from taking advanced classes in math and science. A female science teacher at the same school also indicated that girls are not discouraged from science and, in her opinion, some of the girls are the best students in the advanced-placement courses.

Based on her experiences with her children, a mother of six children who attended Springdale High School, said that she did not observe any gender discrimination:

> One of my daughters did very well in math, so she went on to calculus and stuff. The others took honors in all the sciences, but that wasn't the big interest for them. But I have never heard them say that they felt they were outclassed, or that boys were shining in the classes. They could hold their own. I haven't heard that to be a problem here. I mean it's something you read in the papers a lot, but I don't hear it from my kids.

When asked if parents in the Rolling Hills district have different expectations for girls and boys, a female math teacher at Vanderbilt Middle School replied:

> I actually don't see that, but among the 35 students, who were selected for the gifted math program in the 8th grade, none were female. I was heartbroken to see that. Three girls made the cutoff but chose not to go to the program, because they would miss the activities at the school before 9:30 a.m.

> As for parents' expectations for boys and girls, I don't see any differences. I probably get an equal amount of phone calls for boys and girls.

In general, we observed a sizable gender gap in the advanced-level math and science courses at the high schools we visited. However, respondents differed in the extent to which this gender gap was perceived to be a problem. Some parents and educators believed that gender discrimination has lessened over the past few decades, and few suggested that girls were actively discouraged from seeking careers in advanced math and science.

Ethnicity and Access to Equal Education

Many of the parents and educators whom we interviewed indicated that the racial gap in achievement in their communities was wide and a source of great friction and concern. In fact, the gap between racial groups in academic achievement was a common theme in our discussions about individual differences, and, in spite of its sensitivity; many talked frankly with us about this issue. At several schools, administrators indicated that there was a difference in achievement in math and science among racial groups.

In all of the integrated schools that we visited, minorities were underrepresented in high-level math and science courses. At King Middle School, where a majority of students were African-American, one observer counted only two African-American students in the two high-level math classes for eighth-grade students. Similar proportions were reported in other integrated schools in all three research sites.

Race and Tracking

The existence of racial differences in academic achievement was perceived by some respondents as a source of tension in schools with heterogeneous student bodies. One perceived source of tension between administrators and minority parents was tracking practices, which some parents viewed as discriminatory. The comments of a math teacher at Hamilton High School illustrate this point:

> There is certainly a tension in the community over the gap between the low-ability and high-ability students, which tends to fall along racial lines, and everyone knows it. It's glaringly obvious to everybody. I have 1 minority kid of my 20 calculus kids, and my low-ability classes are primarily black. Everyone knows that. And that's a constant source of pain, I think, for all of us. And we try to do more. We have special programs to ameliorate that. We don't

> do very well. We do it in fits and starts and it is not working. It's awfully tough.

According to an administrator, one proposed solution to racial disparity in academic achievement has been the reduction of high-level courses in math and science. One example is King Middle School, which eliminated high-level courses in all subjects, except math. According to two parents, the administration at King, led by an African-American educator opposed to tracking, was trying to reduce the numbers of students in the high-level math class.

Peer Pressure

Peer pressure was seen by teachers and parents as a factor in creating individual differences in academic achievement, particularly the differences among racial and ethnic groups. Compared to schools in affluent communities, there were more reports of negative peer pressure and labeling of students who performed well academically in inner-city schools. Parents, teachers, and students reported that negative peer pressure was applied to such students. For example, an African-American boy in the honors math course at King reported being ostracized by his African-American friends for 'acting white.'

Several parents and educators talked about similar negative peer pressure against high-achieving African-American students. One high school math teacher at Hamilton High School made the following observation:

> There is a pretty strong pressure by all accounts for minority kids in high-ability classes. There are kids that are telling them that they are acting white. That goes on a lot.

An African-American mother also recognized the existence of such peer pressure, since her son was the only African-American male in the accelerated math class at King. Her son also confirmed that fellow African-American students chided him by calling him a "smart white boy." "It's really bad," he said, "when I don't let my basketball friends copy off of my homework." The situation with his friends bothered him a lot, the student confessed, but he added, he still wanted to do well in school and make something of himself.

At East Middle School in East City, a teacher explained how she believed that one African-American student in her class was deliberately underachieving so that he would not alienate his peers:

> I have a student who could have gone into my second-period class very easily and done the work. But because he is in an afternoon class and he is with some other black students, he tends to do less, much less than he is capable

> of doing. He doesn't want to do better than the other black students in that class.

Peer pressure at Uptown High School. Peer pressure against academic performance was a frequent topic of discussion during our interviews at Uptown High School. The school is located in one of the poorest areas in Metro City and is an ethnically diverse urban school, a port of entry for many recent immigrants to the Metro City area. Uptown prided itself on having students from over 40 countries, but the majority were African-Americans, Hispanics, and Vietnamese.

Academic achievement followed racial and ethnic lines. The children of recent immigrants from Vietnam, Russia, and India performed better in classes at Uptown High than those from other racial and ethnic groups. Vietnamese students, in particular, performed well. In fact, Vietnamese students comprised most of the students taking advanced-placement chemistry and calculus classes and the honor roll at Uptown High contained mostly Vietnamese surnames.

Although Vietnamese students struggled in other subjects that were more focused on English language skills, according to the college counselor at Uptown High, the typically scored above the 95th percentile in math and science. But they scored below the 25th in English on the college entrance examinations. Incidentally, the counselor added that these low English scores were not an obstacle to Vietnamese students being accepted at major national universities.

In interviews with students and teachers, we were told that Vietnamese students at Uptown, along with students from India, were referred to by other students as "geeks", a term similar to "bookworm" but with a more derogatory connotation.

A computer-science teacher at Uptown High explained this pattern:

> Here at Uptown, it is the Asian and Indian kids who get labeled as 'geeks'. I guess it is because they are more willing to let it happen. The kid who is born in the United States has figured out by the time he gets to high school how to avoid that label, to look disinterested, to look like "I don't care even if I really do." One of the things they say that is too bad that happens to our immigrant kids is that they do get Americanized, so they figure out that if you want to avoid getting that label, don't raise your hand, or if the teacher says something good about you, try to figure out a way to make her take it back.

According to one student, any sign of positive commitment to school can bring on the "geek" label at Uptown. A Filipina girl in her senior year at Uptown High indicated that any student taking calculus in the 12th grade is labeled as a "nerd" and even average students who show an interest in school are given the undesirable label by some students.

Although she was not in the calculus class and in fact was taking vocational math, this Asian American student said that she was also labeled a "nerd" because she "does her work." Her resistance to the peer pressure was clear. She said, "I take being called a nerd as a compliment." These observations suggest that even average students at Uptown who exhibit positive commitment to school are negatively labeled by peers.

Peer pressure in the suburbs. While the labeling of students as "nerds" and "geeks" was a common theme at Uptown High School, an inner-city high school, references to these phenomena were less frequent at the suburban high schools we visited. The high-achieving students we interviewed at Hamilton High School reported being ignored by lower-achieving students. The same was true at other suburban schools, such as Springdale High School.

However, at Vanderbilt Middle School, located in the affluent community of Rolling Hills, a high-achieving student reported his group of academically-oriented friends felt negative peer pressure. "They pick on us, call us nerds and stuff, but we don't care, we really don't care," he said. "They used to tell this joke about me," he continued. "What's the difference between Rob and a dictionary? Rob walks, that's the difference."

On the other hand, students who were performing at average levels at Vanderbilt Middle School reported pressure from their peers to do well academically. This was not reported at any of the other schools in the sample. A female student with an average academic record at Vanderbilt explained how her friends were thinking about high school classes: "Most of my friends want to be in the top level or the second from top, because it will be good for them to be challenged."

While academic work was valued in affluent communities, such as Rolling Hills, athletic ability might have been more highly prized at this school and others, as one mother living in Lakeside suggested:

> The greatest value, even in this community, is placed on sports. You see tremendous competition and there are children in this town, fourth-graders, who are on the ice practicing hockey at six in the morning. Even at this young age, that's how the kids are separated—by sports achievement.

This mother added that the push for athletics does not come from the schools but from the parents. In fact, many of the sports programs in Lakeside are community-based programs, including hockey, baseball, and softball. Consequently, peer pressure among students against academic performance and for athletic performance probably has its origins in the values of the community's adults.

In sum, peer pressure among students discouraging high academic performance was a frequent topic of discussion in the schools we visited. Frequently, academically serious students were called "geeks" or "nerds." Students in affluent communities also reported peer pressure to do well academically. It may be that the greater opportunities for college available to these high-achieving students positively influence students' attitudes toward school in affluent communities. There is also evidence that athletics, and not school, are the most highly valued activity among many adults and students in all communities.

Race and Vocational Education

The relationship of race and tracking is also apparent in tracking patterns at the high school level. Tracking in high school emphasizes preparation for work or college, and in most schools we visited, racial minorities were disproportionately represented in vocational programs. Consequently, vocational programs have come under some criticism and scrutiny in these communities.

Vocational education at Hamilton High School. One way that schools have dealt with the criticism of vocational programs has been to emphasize that these programs do not preclude advancement to college. At Hamilton High School, for instance, a school with equal numbers of African-Americans and whites, outside consultants had been hired to help to redesign the vocational arts program in accord with this new philosophy of providing college preparation for all students. The redesigned vocational arts programs were based on the popular notion of career pathways.

The traditional vocational subjects had been reorganized under career pathways into broad occupational categories, such as health care, electronics, computers, and culinary arts. Each career pathway represented a range of occupations, some requiring only a high school education and some requiring advanced degrees. For example, careers dealing with computers included training for entry-level jobs in skilled trades, such as computer repair, as well as preparation for computer-science programs in college. To achieve these dual ends, each career pathway included a mix of vocational and academic courses.

In part to minimize the racial bias of the vocational program, all students were required to take vocational courses at Hamilton, regardless of post-high-school plans. This policy created some rather unusual course offerings. For example, one course that was popular among college-bound students, was "Honors Gourmet Cooking." Students in this course, who received honors credit, spent an entire semester learning how to prepare different ethnic foods. Students are also required to submit a detailed business proposal for a restaurant they would like to open. This purportedly was the academic component of the course. One student who was admitted to an expensive, private university proposed opening a restaurant in the city where he would be going to school.

Vocational education at Uptown High School. The vocational programs at Uptown High School were more traditional than those offered at Hamilton High School. There were three tracks of courses at Uptown High School. Students could select the college preparatory, general, or vocational track. The vocational programs included metal working, business, computers, carpentry, and auto repair and had not been organized into career pathways. However, the school was having discussions about reorganizing the vocational programs along the career pathways system. The vocational programs at Uptown enrolled about one-third of the student body.

In spite of the clear job-training component of the vocational programs, most school personnel at Uptown emphasized that the vocational programs did not preclude enrollment in college. The academic counselor at Uptown emphatically stated that college is an option for all students at Uptown, regardless of their placement in any particular track.

The unpopularity of classes in the vocational track at Uptown may have had other roots than restriction of college opportunities. According to a vocational teacher, the vocational programs at Uptown High were not popular with students, because students know they have to work harder in vocational courses than in regular courses.

Since most of the students at Uptown were poor minority students, the school was in fact working to increase the job-training component. The hope was that a clear relation between the skills learned in vocational courses and those needed in the workplace would increase enrollment in the vocational program.

Vocational education at South Central Vocational High School. South Central Vocational High School was the only vocational high school in the sample. Even so, efforts were made to insure that some students at the school would have the opportunity to attend college.

Educators at South Central Vocational High School suggested that students from disadvantaged families need more vocational education programs, not fewer. A vocational teacher at South Central presented the problems facing students from schools like his when they are confronted with the need to find jobs with their limited academic skills:

> We talk about Shakespeare, but these kids can't even fill out an application. Is there any Shakespeare on here? [Waving a job application] No. It's asking you for three references. Not just your neighbor next door. It's gonna ask for your phone number, zip code, and address. Zip code is a part of that. Do you have your social security card? These are real things that these kids should be taught how to do. Macbeth? Wonderful! But when you are hungry, that ain't gonna do you one bit of good. We need that Amoco lady who sits there and pushes the button. If you give her ten dollars, she punches in the numbers and knows how much to give you back. And we need that lottery lady who spits out that lottery ticket. These people are trained. You have to have a skill.

This vocational teacher at South Central continued to convey the necessity of providing concrete job skills for students living in the inner city. Individual differences for this educator centered on providing skills that would get her students jobs:

> The first thing they want to know is, can you operate a computer. They could care less about your diploma. When we don't equip students, we set them up to fail. [imitating a white man's voice] "So what experience do you have?" [black man's voice] "None." [white man's voice] "Next."

The teacher continued:

> Black people are wrapped around the block looking for jobs. Not that some of them wouldn't be good workers, but we don't prepare them. I tell my youngest son, "Don't tell me nothing about a diploma, I want you to be able to do something." If I see a carpenter on the street, I say, "Can I send my son here to watch you work?" It's exposure. You have got to put these kids somewhere where they can learn a skill or trade. Ford Motor Company. The hospital. Take these kids three times a week. Every high school in the city. There are enough hospitals and nursing homes in the city to give these students experience. We bring computers into the schools. Put the kids where the computers are going to be used. Because they are in competition. I tell these kids, "You are in competition with other kids from other schools and not only are you in competition with other kids, you are in competition with their parents." They'll tell you, "Last year my cousin graduated and he still ain't got a job." He's telling you something. He doesn't know what, but he is telling you something.

Money for vocational training is hard to come by at a school like South Central Vocational High School, in part because of the focus on academics and not job skills. A vocational teacher at South Central talked about her need to find $20,000 to renovate the vocational lab in a way that would help her work with students who have limited academic skills, such as the ones attending South Central. However, she acknowledged that there was no money in the budget for such a renovation, and she felt she was unlikely ever to get that money. In fact, the local paper listed South Central as one of five schools slated for closing the following fall.

Education for Students with Disabilities

In 1975, Congress passed the Education for All Handicapped Children Act (P.L. 94-1142), which required public schools to identify and then to provide special education services to all children with educational, emotional, developmental, or physical disabilities (Singer, Palfrey, Butler, & Walker 1989). The act was amended in 1990 and has since been known as the Individuals with Disabilities Education Act (IDEA) (Kauffman & Smucker 1995). This act mandates free and appropriate public education for all handicapped children between the ages of 3 and 21 and sets up a system of federal financial support to states that implement the law. Funds are supplied to each school system for each child who is enrolled in a special education program, until the number of students reaches 12 percent of the school population, after which no additional funds are available. The guiding principles of the act ensure that:

- No child will be denied placement;
- Programs will be individualized;
- Children will be placed in the least restrictive environment that can adequately accommodate their needs; and
- Parents will participate in making decisions about placement (Mehan, Hertweck, & Meihls 1986).

To fulfill federal reporting requirements and receive reimbursement, states and school districts are required to classify their students who have special needs. Classifications of students vary somewhat but generally correspond to seven conditions mentioned in P.L. 94-142: speech impairment, learning disability, emotional disturbance, mental retardation, hearing impairment, vision impairment, and orthopedic/medical impairment. The child's classification is a major determinant of the placement and services the child will receive. For example, children classified as learning disabled are usually placed in regular classes, often leaving class for a period of special instruction, while children classified as emotionally disturbed or mentally retarded are usually placed in separate classes or schools (Singer et al. 1989).

The evaluation is conducted by a multidisciplinary team, which must include at least one teacher or other specialist with knowledge of the area of suspected disability. After interpreting the evaluation data and identifying the child as handicapped, the team develops an individualized education plan (IEP). Included in the IEP are the student's current level of educational performance, short- and long-term educational goals for the student, a plan for the evaluation of student progress, and documentation of the kind and duration of the services the student will receive. The IEPs and the child's progress are reviewed at least once a year to determine if revision is necessary (Mehan et al. 1986).

P.L. 94-142 also specifies protective safeguards pertaining to the rights and responsibilities of parents. The development of educational policy for a child requires parent participation, and parents or guardians must receive written notice whenever a change in identification, assessment, or educational placement of their child is proposed. If an agreement cannot be reached about the appropriate placement or the IEP for a handicapped child, then parents or educators can initiate an impartial hearing. To prepare for this hearing, parents must be given access to all educational records and information pertaining to the school's evaluation of their child. (Mehan et al. 1986).

At the elementary level, most special education students receive pull-out services from regular classes, meaning that students leave their regular classroom to receive specialized instruction with a small group of other students and then return to their classroom (Entwistle & Alexander 1993). National statistics, collected by the National Center for Education Statistics for the 1993-94 school year, showed the following percentages of students participating in remedial and special education programs or services: 3.07 percent in bilingual education, 3.97 percent in English as a second language, 10.88 percent in remedial reading, 6.90 percent in remedial mathematics, and 6.88 percent in programs for the handicapped (USDE 1995).

Special and Remedial Education in the Case Study Schools

There is a movement in the United States to include students with severe handicaps in the regular classroom to the greatest extent possible. However, we found a variety of practices, depending on the policies of local school boards. Students receiving special education were usually pulled out from the regular classroom for a limited time period, mainstreamed in the regular classroom, or separated from regular students in self-contained special education classrooms. In one elementary school, children with severe disabilities were fully mainstreamed into the regular classroom, while at another school these children spent most of the day in separate classrooms. The inclusion of students with severe learning or physical disabilities in regular classrooms was a source of controversy in some schools.

The administration at Parks favored inclusion, but the teachers we interviewed at Parks reported believing that inclusion was not working. One Parks teacher described her experience with inclusion as follows:

> There's 28 students in this class. What am I going to do? Sacrifice the other 20 to 25 students who are supposedly normal, just for 3 or 4? It's a no-win situation.

Parents at Parks Elementary were also aware of the regular classroom teachers' frustration with inclusion. One father was concerned that his child, who was in the regular classroom, was not receiving an adequate education because of inclusion.

> A lot of people don't favor inclusion. Probably a lot of the staff particularly don't. Because it takes away from what they're trying to do with their students, the regular students. I don't think they really know how to handle special education students. So it does take away from what they're trying to do.

Some school districts have adopted a practice called reverse inclusion. In reverse inclusion, nonspecial education students are brought into the self-contained special education classroom on a periodic basis. The advantage of this practice, according to some special education teachers, is that it allows severely disabled children to stay in an environment to which they are accustomed and in which they feel comfortable.

Rockefeller, on the other hand, had the resources to practice regular inclusion without creating an additional burden on the regular teacher. Special education resource teachers were assigned to the handful of students at Rockefeller with severe handicaps. The resource teachers spent the entire day with the severely handicapped students, who were integrated into regular classrooms. One problem with regular inclusion that is seen by special education teachers is that it forces severely disabled children into an unfamiliar environment.

For learning disabilities, the superior financial resources of schools in affluent districts made it possible to provide remedial education services on a scale unimaginable in financially strapped schools. At Vanderbilt Middle School, for example, even students who performed at average levels on state-wide tests were being selected for remedial programs, since these students had a relative performance below that of the typical student at Vanderbilt, who scored at the 90th percentile in state-wide comparisons. As one teacher explained:

> We have a really high percentage of our kids in special education. In both fifth and seventh grades, over 25 percent of the kids are in special education.

The advantages of being classified as a candidate for remedial education are both tangible and intangible. Tangible benefits include special tutoring and more frequent interaction with resource teachers. Less tangible advantages may include a reduction in the pressure to perform well in a highly competitive environment.

Becky, a student at Vanderbilt Middle School, was part of a school program called "resource study skills" that allowed her to seek help in her subjects once a day. Math was not one of the subjects with which she was having difficulty, so she did not normally seek help in math, but she did often seek help in social studies and writing. Science was also a subject in which Becky was doing well. In short, Becky was an average student who would probably not have been defined as eligible for remedial help in other districts.

A math teacher in the Rolling Hills district said that the school tends to "over-diagnose" students, creating a situation where average students are defined as remedial or special education students:

> I think a lot of the kids get referred for testing because they are at the bottom of the class. Well, then it turns out they're just real average kids—IQ around 110 and they are working right up to their potential. But, in Rolling Hills, that puts them in the bottom of their class.

However, the pattern of over diagnosis may be more widespread. The director of the special education program at Hamilton High School reported that the school probably slightly over diagnosed, since it had the resources to do so. According to the director, the number of students at Hamilton receiving services probably exceeds the number one would expect in the general population.

One Vanderbilt teacher said that parents in the district are often relieved to have their children placed in these classes, since it takes the onus of personal responsibility off the low-performing child in this highly competitive district:

> There's this one parent who drives me crazy, because her third kid just got put into special education and she says to me, 'Look, I am three for three. All of my kids are special ed. Yes.' I have the oldest one in one of my classes and I would say, 'Learning disabled?' No, I don't think so.

In contrast to schools in affluent districts, educators in poor districts indicated that there was a tendency to under diagnose students in need of special or remedial education services because of the lack of resources to serve any but the most needy students. A special education teacher at the school indicated that many students in need of special education services had yet to be diagnosed. A regular fourth-grade teacher estimated that at least 8 of her 30 students needed remedial help in arithmetic. The teacher further estimated that at least three of those students needed to be tested for learning disabilities. In fact, only one had been tested and was now receiving remedial help in arithmetic.

Furthermore, several teachers believed that the number of children needing special education services in many communities might be growing. One teacher indicated that many of the special education students in inner-city schools had been born to mothers who abused drugs during pregnancy. The result of prenatal drug abuse had been more severe cases of disabilities than seen in prior generations. Also, in middle-class neighborhoods, an increase in the number of students with problems was attributed to the increasing number of women delaying childbirth.

The process of diagnosing students for special education services is a complicated one, according to a fourth-grade teacher who had been a special education teacher. She indicated that the criteria changed from year to year with changes in the school administration. According to the teacher, there was a period for 4 or 5 years when not enough students were being assigned to special education classrooms. During this time, a special panel composed of teachers was set up that reviewed all cases. According to the teacher, this panel had a tendency to under diagnose. Consequently, as a teacher of a regular fourth-grade classroom, she was seeing many of the kids she felt should have been diagnosed and placed in special education classrooms. This illustrates how policies can affect who gets classified as "special education" and the range and type of services provided.

In summary, inclusion was broad-based and not limited to the poorest school districts; however diagnosis and support services for remedial and special education students were more limited at inner-city schools. In addition, the criteria for diagnosing students in need of remedial or special education services varied considerably from school to school. In general, in poor districts there was a tendency to under diagnose students in need of remedial and special education services while in affluent districts the tendency was to over diagnose. This was in part related to the disparity in financial resources available to support these services. Another factor was the greater resistance of administrators and school boards in poor communities to place any restrictions on students' opportunities to learn.

Education for the Gifted Student

Twenty years ago, few programs existed for gifted and talented students; yet by 1990, 38 states served more than 2 million gifted students in kindergarten through 12th grade. Twenty-six state and trust territories required that schools provide specialized services and programs for gifted and talented students, and 27 had passed legislation encouraging districts to provide such programs; only 6 states and territories lacked such legislation. However, the percentage of students identified as gifted in each state varies due to differences in state laws and practices. For example, 4 states identify more than 10 percent of their students as gifted and talented, while 21 states identify fewer than 5 percent. According to NELS data, in 1988, 65 percent of the public schools had some kind of opportunity for gifted and talented students, and approximately 9 percent of all 8th-grade public high school students participated in gifted and talented programs (USDE 1993).

Two of the most common approaches to educating gifted students are enrichment activities and acceleration practices. Enrichment typically means that students are offered more varied educational experiences. Enrichment programs might include after-school or Saturday classes, resource rooms, additions to regular classroom curriculum, or special interest clubs (Colangelo & Davis 1991).

Acceleration usually includes early entrance to kindergarten or college, grade skipping, self-paced studies, or part-time grade acceleration in which a student receives advanced instruction in one or more content areas for part of each day (Colangelo & Davis 1991).

Programs for Gifted Students

Not all schools that we visited had programs for gifted and talented students, but the programs that did exist depended on the priorities of the local school districts. Programs for gifted students were left up to the principal of the school or the local school board. Most teachers and parents thought that gifted children should be encouraged to develop their talents in school through special programs that provide challenging instruction for these students.

Among the few programs for gifted students were those at Rockefeller Elementary School and the other suburban schools. The program for gifted students at Rockefeller Elementary began in the fourth grade. Gifted students were "pulled-out" of their regular classrooms to receive special instruction in academic subjects, such as arithmetic or reading. Likewise, the pullout math program for gifted students began in the fourth grade in elementary schools in the district of Vanderbilt Middle School. Students were selected on the basis of scores on a test given to third-graders at the school. According to the math teacher at Vanderbilt, 90 percent of the criteria for admission were based on objective measures, including this test given in the third grade.

The emphasis on objective criteria was necessary, according to the math teacher at Rolling Hills, because many parents in the Rolling Hills district tried to persuade the school to place their children in the pull out program. The teacher explained, "The concern is that if their kids do not take calculus by the 12th grade, they won't be able to get into Harvard."

A mother at Vanderbilt explained why there must be an emphasis on test scores in determining eligibility for gifted programs:

> There are always parents who feel that their kids need to be in the extended math program (the gifted program), even though they are not even close to qualifying. I know that these parents have met with the principal and they have poured over the test scores. But ultimately it is the test scores. They will retest a kid if they think that the scores don't make sense. Every one of us wants enrichment for our kids. We want our kids to be challenged to the limit. We don't want them to be so challenged that they get frustrated. If there is the slightest doubt, that child will be re-evaluated. Most of the time there isn't a lot to stand on. As we say in Rolling Hills, all of the kids in Rolling Hills are gifted.

In the sixth grade, students in the Rolling Hills district were given an examination designed to predict academic success in algebra courses. Students who scored above a certain level on this examination were asked to take the SAT during the sixth grade. "Many of the 6th-graders score better than I did in the 11th grade," joked a math teacher at Vanderbilt. The sixth-grade students with the top four or five scores on the SAT qualified for a special program in math beginning in the seventh grade. These students, along with qualifying students from other junior high schools, were bused to the district's high school three times a week to receive accelerated instruction in math. In addition to this program, two high-level math courses were also offered to students at Vanderbilt Middle School.

Although there were classes for high-achieving students, the gifted programs in math and science at the average and low-achieving elementary and middle schools were limited or nonexistent. Some schools had no program for gifted students. Educators indicated that these programs would divert financial resources away from remedial and other programs needed at these schools.

The lack of gifted programs at many schools may contribute to the perception that gifted students are being ignored by the schools. A teacher at West Middle School said, "I think the very highly gifted get cheated somewhat in our American school system." This belief was shared by other teachers, parents, and administrators with whom we spoke.

Summary

In the United States, there is no national policy regarding the treatment of ability differences. Instead, local school districts and school principals implement practices based on their beliefs about individual differences, their perceptions of the needs of students, and their financial resources. Local autonomy over schools creates great variety in the educational programs.

Many public schools in the United States serve a diverse student body in terms of both social background and individual differences in ability. In an effort to deal with such a diverse array of students, teachers reported relying on a number of strategies. A central strategy is tracking and ability grouping. These practices begin as early as elementary school and are nearly universal. All schools in the sample practiced some form of ability grouping or tracking, although the types of practice varied considerably.

Differing approaches to individual differences was also seen in practices associated with cooperative learning, homework, grading, and computerized instruction. Some practices, particularly detracking and lenient grading, appeared to be a source of friction between administrators and parents who felt that a grouping by ability would serve the needs of their children better

Cooperative learning, the pairing of faster learning students with those who learn more slowly, was a practice that we observed again and again. Teachers in all three locations reported relying on cooperative groups to manage individual differences. There was a belief among most of the teachers that such an arrangement has benefits over whole-class instruction. Those who learn more rapidly are assumed to reinforce their own learning by helping others; slower students are assumed to benefit from the extra help they obtain from their peers.

Parents, teachers, administrators, and students were highly cognizant of the role that family stability and support has in creating individual differences. Many linked the problems in the schools to the lack of family support they believed to be widespread within their communities.

Equity issues were considered to be of great importance, and many of the persons we interviewed talked freely about inequities they perceived or did not perceive. Gender equality in access to math and sciences was not a central concern of most of the respondents. Many indicated that they believed that the barriers to math and science achievement for girls had largely been eliminated. In contrast, racial inequities were widely acknowledged and were a frequent source of concern.

Remedial and special education played large but varied role in the schools in the three locations. Every school that we visited offered some program for students with special needs. However, the programs differed greatly from school to school. Some were large and included students in need of remedial help. Others were limited to students with severe learning disabilities.

A few schools had programs for highly gifted students in math and science, but most of the schools did not. Many respondents conveyed their belief in the importance of gifted programs, but at the same time, they felt that gifted education was not being given the necessary resources in their schools.

There is no consistent system in the United States for dealing with individual differences in students' abilities. Rather, there is a variegated landscape of systems; each school district and school has, for the most part, developed its own programs and approaches. Nonetheless, some strategies were consistently observed across schools and locations. In addition to age-graded classrooms, tracking and ability grouping in math and science were nearly universal practices. Most teachers used some form of cooperative learning and believed in its effectiveness. As strategies for dealing with individual differences, many teachers conducted question-and-answer sessions, assigned homework according to students' ability, or relied on other instructional resources. Experiments with eliminating or changing almost every one of the practices were reported by nearly every district, school or teacher we visited.

Finally, parents, teachers, administrators, and parents from a wide range of backgrounds indicated their belief that differences in family support contributes greatly to creating individual differences in academic achievement. The perception is that individual differences in performance begins in the home. At the same time, the lively discussions about individual differences that we had with parents, teachers, and students emphasized the importance which they placed on equity and access in school for all students.

Chapter 4

The Role of School in United States Adolescents' Lives

By: Barbara K. Hofer

A Typical Day for an Eighth-Grade Student

The clock radio clicks on and Gabe Marshall wakes to rock music from his favorite radio station. It is 6:30 a.m., and his parents and older sister are also up and getting ready for the day. Soon his father will catch the train to work, and his mother will leave to drop his sister at the local high school before she heads to her office. Gabe gathers his homework from his desk and places it in his backpack with other school materials and textbooks. After dressing, eating, and talking briefly with his mother about a permission slip he needs signed for a field trip, he waits for his neighbor Matt to meet him for the walk to the nearby middle school.

When they arrive at school, Gabe and Matt quickly locate their group of friends, gathered just outside the school building, a large concrete structure built in the early 1950's. When the bell rings at 8:00 a.m., students move inside, continuing their conversations, and head for their lockers to gather the materials needed for the first part of the day. Then they go to their 20-minute advisory period. In advisory class they listen to morning announcements, some from the principal over the school loudspeaker and others from the advisory teacher. She reminds the students of the upcoming registration for next year's high school classes and distributes information to take home to parents about the courses students can choose to take.

Although they are both eighth-graders, Gabe then heads off to algebra class and Matt to prealgebra. Because they are part of the same middle school team, they have most of their other academic classes together, each of which last 45 minutes, with 5 minutes between classes. In Gabe's class, students pass in their homework and then work in small groups on a series of problems. The teacher periodically intervenes to keep groups on task, provide further information, and summarize the material learned. During the next period, in English class, they work in pairs to edit each other's essays, and then the teacher introduces the next novel they will be reading and provides a worksheet to complete on the first chapter. Science class follows, and Gabe enjoys this most of all; the teacher is introducing them to chemistry, and Gabe likes the hands-on experiments and the way the teacher makes them interesting. Today they learn how bases and acids interact by combining vinegar and baking soda in the making of peanut brittle, which they also get to eat. At the end of class, the teacher reminds them of an upcoming test and provides a review sheet of questions to help prepare. Afterwards, Gabe rushes to his locker to store his books and then to the lunchroom, where he buys pizza and french fries before joining his friends for lunch. In the afternoon, Gabe has American history, band, and Spanish. When the final bell rings, he heads back to the boys' locker room and changes for an hour of soccer practice.

Gabe reaches home at 4:00 p.m., grabs a snack in the kitchen, calls his mother at work to check in with her, and then takes off to deliver papers. Gabe has had a paper route since he was 11. He enjoys having his own money to buy new games for his computer and to spend on weekends. When he returns home, he flips on the television and watches until his parents arrive home from work. They admonish him to begin his homework. He starts his math assignment and reads an assigned chapter for history, until his mother calls him to set the table for dinner. She tells him that there will just be three for dinner tonight, as his sister has theater practice and won't be home till late. After dinner, his mother reminds him to practice his clarinet, and then it is time to watch a couple of favorite TV shows with his parents. A classmate calls to clarify a homework assignment, and they talk for several minutes about other things and make plans to meet at a movie on Saturday. At 9:00 p.m. he heads upstairs to finish his homework and then plays on his computer for a few minutes before bedtime at 10:00 p.m.

Introduction

One of the concerns in a comparative study of education is the role that school plays in adolescents' lives. In order to understand more about this role, we conducted interviews in three major urban areas during the winter and spring of 1995. In addition to talking with adolescents to learn more about their own perceptions, we also observed in classes, lunchrooms, gyms, and hallways. We talked with parents, teachers, and school administrators to learn their perspectives about this time of life and the role school appears to play. We were interested in what students do when they are at school, what they do when they are not, and how the two are related. We wanted to know more about the experience of schooling from the adolescent point of view, what other activities occupy their time and engage their interest, their issues and concerns, what they care about, how they approach the future, and how school fits into this picture.

Methodology

Employing an ethnographic Case Study method, researchers conducted interviews and observations in three urban communities at five comprehensive high schools, a vocational high school, three middle schools, a junior high school, and an elementary school that houses grades K–8. Although these were described earlier in the introduction, brief descriptions are offered in order to provide context for the comments that follow from students, parents, teachers, and administrators.

Table 1—School profiles

Metro City

Metropolitan School is a large, year-round, urban school for grades K–8. Less than 5 percent of the students were white, nearly two-thirds were African-American, and nearly a third Hispanic. The community was highly transient, with a student mobility rate over 80 percent, indicating the number of students who enroll in or leave the school during the school year.

King Junior High School houses seventh and eighth grade in a racially integrated middle-class community. More than half the students were white, and just over a third were African-American. Fewer than 1 percent were non-native speakers of English. The student mobility rate is 4 percent.

Vanderbilt Middle School is located in a prosperous upper-middle-class suburban neighborhood and includes grades five through eight. The school provided elaborate resources for an almost 100 percent white population that was nearly all college-bound.

Uptown High School, a large urban high school built around 1910, is in a highly transient low-income neighborhood that is one of the main ports of entry for immigrants to the United States. The 2,000 students represented over 50 nationalities and more than a quarter were enrolled in classes to learn English as a second language. The drop-out rate exceeded 20 percent. Per-pupil expenditures averaged $6,600 annually.

Table 1—School profiles—Continued

Springdale High School served 2,800 students from primarily middle to upper-middle-income homes in two communities. Two-thirds of the students were white and over a quarter were African-American. Nearly 90 percent of the graduates continued their education after high school. Per-pupil expenditures averaged $10,300 annually.

Hamilton High School is a large comprehensive high school of nearly 3,000 students that serves two diverse communities bordering a metropolitan area. The school's campus is extensive, resembling that of a small college. The student population included nearly even proportions of white and African-American students (45 percent) and the remainder were primarily Hispanic and Asian American. One-third of all students were considered low-income, but many others were from quite affluent families. Roughly 80 percent of the students continued their education, and the drop-out rate was below 3 percent. Per-pupil expenditures averaged $13,400 annually.

South Central Vocational High School is a vocational school located between two housing projects in a neighborhood of abandoned buildings. Many of the 700 students, who were nearly all African-American, had been suspended or expelled from other schools in the city. School security included metal detectors, uniformed police on duty throughout the day, and surveillance cameras in the hallways. Less than one-quarter of the students graduated. Per-pupil expenditures averaged $6,000 annually.

West City

West Middle School is located in a low-income section of West City, a neighborhood of small single-story, plaster homes with chain link fences and often with iron bars on the windows. The school served a population that was three-quarter Hispanic, 17 percent Asian, 3 percent African-American, and 1 percent white. Sixty percent of the students have limited English proficiency and 85 percent were low income.

West High School is located in a low-income district of West City. The diverse student body included 43 percent Hispanics, 38 percent Asian, 7 percent white, and 5 percent African-American, with several other groups represented among the remaining 7 percent. The percentage of students classified as low income was 37 percent, and 46 percent had limited English proficiency.

Table 1—School profiles—Continued

East City Area Schools

East Middle School is an immense, modern school built within the last 5 years, located in a rapidly growing suburban community. Student achievement in math and science was average for the state. Close to 90 percent of the students were white, and under 10 percent were African-American. The portion of students eligible for free lunches was 7 percent.

East High School, built about 20 years ago, is a large split-level structure that was overcrowded; 7 trailers served as an annex to the school proper. Student achievement on math and science tests was in the middle range for the state. White students made up just over 60 percent of the student body, and nearly a third of the students were African-American. The portion of students eligible for free lunches was 14 percent.

In Metro City, William Foraker and Mavis Sanders conducted the majority of the interviews and observations on the topic of schooling and adolescent's lives. This work was supplemented by additional fieldwork conducted by other members of the research team: Douglas Trelfa, Roberta Nerison-Low, and Carmen Maldonado de Johnson. In East City, William Foraker and Carmen Maldonado de Johnson were the primary researchers, and in West City, Gerry LeTendre and Sally Lubeck filled this role. The data from this collection of interviews and observations were analyzed by Barbara Hofer, who had been involved in the design phase of the study and who conducted further fieldwork in the primary site following initial analyses of the data.

The field research includes transcribed interviews with students from 8th through 12th grade, including 49 students from Metro City, 7 from West City, and 6 from east City. A smaller number of parents were also interviewed: 19 in Metro City, 4 in West City, and 1 in East City. Fifteen teachers were interviewed in Metro City, 4 in West City, and 3 in East City. The research team also interviewed administrators, including principals, assistant principals, and curriculum directors; there were 11 such interviews in Metro City, 6 in West City, and 1 in East City. In addition, classroom observations, primarily of math and science classes, were conducted in 25 classes in Metro City, in 2 classes in West City, and in 4 classes in East City. Written material provided by the schools, generally regarding school policies, curriculum and scheduling, were also included in the analysis.

The adolescents who contributed to this study and their parents, teachers, and school administrators appeared open and willing to share their views and experiences with us. They were aware, however, that we were researchers from a university, collecting data for a national study, and we do not know to what extent this may have affected their responses. We met with the participants in classrooms, teachers' lounges, in the hallways, and in homes. Interviews with students were arranged through principals or teachers; most were conducted individually or, in a few cases, as group interviews. Principals also recommended parents and teachers to be interviewed. This process may have restricted our access to a broader range of students, and within each of the schools we may have been more likely to have interviewed and observed those most engaged with the school.

We did not interview students in rural areas, and while our sites were carefully selected, they cannot be presumed to be representative of all U.S. cities. Within these limitations, we have provided our best interpretation of the role of schooling in the lives of adolescents in the selected communities where we lived during this period of time.

Time Use in Adolescents' Lives

For adolescents in the United States, school occupies a significant amount of time during the 9-month academic year, but it often fits into a complex schedule of athletic events, social life, after-school activities, studying, employment, and family time. The priority placed on these sometimes competing demands varies widely, as does access to various opportunities. For many students, school is not only about classes, but it is also the hub of an active life; school is where they meet friends and socialize, participate in sports, pursue personal interests through a variety of activities, try out leadership roles, and express themselves through musical and theatrical productions. For others, school is the place where they are expected to be between select hours of the day, but the connection between school and the wider world, personal life, or future goals may be tenuous.

After-school time may be scheduled with activities and sports, or it may be loosely structured. Many students manage part-time jobs, often scheduled immediately after school. Once students arrive home, weekday time seems to revolve around schoolwork, television, friends, family, and chores. Weekends are typically spent relaxing with friends and family, catching up on schoolwork, pursuing paid employment, and engaging in a range of leisure pursuits.

School

School takes a number of structural forms for U.S. adolescents, particularly during the middle years. Even within the same city there may be significant variations. For example, we interviewed some eighth-grade students who were in the middle year of junior high, other eighth-graders who were in the final year of middle school, and still others in the final year of elementary school—all within the same urban community. By 10h grade, however, all students are attending high school. This does not mean they have a common set of experiences, however, for U.S. high schools are remarkably disparate in their offerings, and even those students attending the same school may have vastly different experiences, depending on their course of study. To speak of "school" for U.S. adolescents, therefore, is to evoke a multiple, diverse array of experiences and institutions.

One thing that is fairly common across the United States is the length of the required school day. Most students described a formal school day of 6 to 7 hours. A fairly typical pattern might be from 8:00 a.m. to 2:30 p.m., with some students arriving early for federally-subsidized breakfast programs, and many arriving early or staying late for extracurricular activities and sports. Junior high and high school students usually have six or more classes a day and move from class to class, changing teachers each period. Classes typically run about 40 to 50 minutes, with a brief passing time in between, and a short lunch period (often no more than 20 to 30 minutes). In most cases students are expected to stay in the building once they arrive and to eat lunch in the school cafeteria, although some schools permit older students to leave the school during their lunch period.

The class schedule usually remains consistent throughout the week, with students attending the same classes in the same sequence each day for a term. Individual schedules often change at the end of the term, as some courses are offered for the whole academic year and others for only one term. Variations occur in middle schools and in those elementary schools that house seventh- and eighth-graders (at those we visited). Generally, students may move from class to class as a group, changing teachers and subjects together for most classes, perhaps with some variation for elective courses; in other schools, students may take several classes with the same teacher. A typical eighth-grade daily schedule appears in table 2.

Table 2—Typical schedule for an eighth-grade middle school student

Time	Activity
8:00—8:20	Advisory Period
9:15—10:00	English

Table 2—Typical schedule for an eighth-grade middle school student— Continued

Time	Activity
10:05—10:50	Algebra or Prealgebra
10:55—11:40	Elective class (foreign language, art, gym, shop, computer, chorus, band, orchestra)
11:45—12:05	Lunch
12:10—12:55	Science
1:00—1:45	Elective class (foreign language, art, gym, shop, computers, chorus, band, orchestra)
1:50—2:35	U.S. History (or other social studies class)

The courses students take during these hours vary widely. In early adolescence, regardless of the structure of schooling, most students across the country are enrolled in similar classes that cover the standard fundamentals of the curriculum (English, math, social studies, science), but this soon changes. The process of determining who will take advanced courses usually begins with placement in the first algebra course. Once offered fairly uniformly as a ninth-grade course, algebra is now an eighth grade option in many schools, and in the more elite schools in two of the three cities studied, it was offered to a small number of precocious seventh-graders. Placement in this course may carry connotations of prospective academic success, and parents eager for such confirmation of their child's potential may push for early enrollment in algebra. Scores on annual standardized tests and parent requests were mentioned most often as the basis for these placement decisions; it is not uncommon, however, for parental influence to take precedence over test scores.

Although math is often the initial class in which students are separated by perceived ability, this division soon happens throughout the curriculum. By the early years of high school, students who sat side by side in elementary school may seldom see one another again. In large urban high schools there are fairly distinct curricula for those who are college-bound and those who are not. Even among those headed to college, decisions must be made about whether to take the more rigorous advanced-placement courses and honors courses or the traditional academic versions. These classes often carry different numbers of credits, involve differing degrees of depth, and are described by students as differing in classroom ambiance, with the higher-track classes drawing more serious students who are more likely to stay on task. As one student at Uptown High School noted about his preference for honors English: "You can concentrate better, because in my regular English class there were a lot of disturbances. Honors English has a more positive environment, although it is the same teacher." Similarly, mathematics class can have a dramatically different tone and purpose even in the same school with the same teacher. In one school, a factory clock with individual time cards was mounted on the classroom wall. Arriving for general math, students shuffled in, pulled their cards and punched in, before taking their seats. The teacher explained that this was a part of the school's effort to prepare them for the work world they would soon be entering. During a later honors precalculus class held in the same room, the college-bound students made no use of the apparatus.

Although there are these widely differing courses, there is often some fluidity among who takes them. Students might take advanced classes in some subjects and not in others. It is not unusual, for example, for a student to be perceived as capable of the more advanced types of classes in math but not in English, and vice versa. With each semester's enrollment, students select courses from a menu of options of both required and elective courses within the parameters of minimum high school graduation requirements set by the state, and, for those who are college bound, with attention to the requirements set by colleges and universities that students might wish to attend. For example, some states require 2 years of high school math (at any level) for graduation and have no foreign language requirements; universities in the same states, however, might expect 3 to 4 years of math and at least 2 years of a foreign language.

Those going immediately to work after graduating from high school seem to hope that the diploma alone, regardless of actual courses taken, will suffice for entry positions, as there is little formal articulation of employer needs in shaping high school curricula. The significant exceptions to this were the small number of vocational programs we observed within large high schools that had been designed cooperatively with industry.

Accordingly, it is possible for different students to have markedly different academic experiences, even within the same high school. At Uptown High School, one senior described a course load that included honors chemistry and calculus, American government, a foreign language, and a literature course, while a junior in the same school described a school day sequence of tech math, tech English, gym, band, and computer class. These "tech" versions of courses often represent simplified approaches to the subject matter for students who are not planning to attend college. For those students for whom English is not their native language, the curriculum may take on further variations. Some students have the proficiency to take regular courses except in English, where they enroll in special English as a Second Language (ESL) courses. Others may arrive speaking little or no English. These students are accommodated in different ways, depending on the school and on their native language. Schools with large immigrant populations may provide bilingual programs, in which all the basic courses are taught in the students' native language while the student learns English.

Students must make selections from among these many offerings, often with limited information about the implications of their choices for future academic work, college planning, or vocational options. Informal knowledge often takes precedence, and those students whose parents or peers are well informed have clear advantages in developing an academic plan that will enhance their future academic or occupational opportunities.

Variation of both academic and nonacademic programs across schools is affected by financial considerations. Schools plan their programs within a budget allotted by state-determined practices, typically based on property taxes. Per capita spending for education can vary greatly within the same region, providing more resources for schools in higher-income school districts. (All figures reported were provided in the schools' annual statistical reports.) For example, within the Metro City area, the amount of money spent per student was reported as approximately $6,600 at the inner city Uptown High School, $10,300 at Springdale High School, and $13,400 at suburban Hamilton High School. In the schools observed, these differences in funding were cited as explanations for differences in teacher-student ratios, availability of textbooks, computer resources, and the presence (or absence) of sports, music, and student organizations. Parents may also raise additional money for use by the school for special purchases or extracurricular activities; such fund-raising is likely to be more successful in higher-income neighborhoods.

Extracurricular Activities

Extracurricular activities are believed to play multiple roles for students: they stimulate interest, occupy leisure time, provide opportunities for social interaction, and enhance college applications. There are students who take full advantage of these opportunities, fitting a remarkable assortment of activities into their schedule and often extending the school day in both directions. A female senior whose family had immigrated to the United States only a couple years earlier described an intensive academic load that included several advanced-placement courses plus participation in a select academic competition with other schools, an activity for which she practiced during an additional school period and on holidays. Asked if she had other extracurricular activities, she replied,

> Yes, I am secretary of the national honor society. I am secretary of the French club, the swim team, and the pom-pom club. I also am a math tutor. I see so many interesting things and people, so I want to do and learn as much as I can. Sometimes I don't feel like I have time, but I try. (Twelfth-grader, Uptown)

This student was one of many who described half a dozen or more activities in which they were simultaneously involved. Many students play an instrument in the band or orchestra, an activity that also necessitates at-home practice. Some schools offer athletic competition at various skill levels, including intramural, junior varsity, and varsity, in a dozen or more separate sports. Most lobbies in the high schools we visited had large trophy cases that proclaimed years of victories. Students can participate in student government and honorary societies, and they may choose to assume roles with the school newspaper or yearbook. School theatrical productions draw many, including those eager to be on stage and those who are happy behind the scenes. Interest clubs abound, including various social and political action groups, chess clubs, and computer groups—and in the most affluent schools, groups that meet nearly every interest, however obscure. As one Hamilton High School student remarked: "Man, I mean we even have a snake club! We have a lot of things to do at this school."

Sports engage the lives of many, and though opportunities have increased for girls over the decades, boys were more likely to talk about the role of sports in their lives. Those involved in competitive sports may spend 2 to 3 hours daily in scheduled practice during the season. Some spoke of waking as early as 5:30 a.m. to attend before school swim and gymnastics practices, and others talked of staying till 6:00 p.m. on a daily basis. Opportunities also exist for less competitive athletics. The more casual participant may move from sport to sport through school intramurals or community-based programs, and a number of students talked about their involvement in three or more sports each year. A student at King Junior High School, asked about the importance of extracurricular activities in his life, spoke enthusiastically:

> Well, they make school more fun for me . . . . I was on a basketball team and that was fun, and it gives you exercise at the same time you're having fun, and I'm thinking about playing boys' volleyball and running track.

Not all students attend schools that offer such a range of activities. Some students described a pattern of engaging in school sports that were later eliminated in budget cuts. At the most extreme end, one principal described the demise of his school's football team when a violent gang fight erupted on the field during competition. Currently this school offers few interscholastic sports and no after-school activities, as teachers are described as unwilling to stay after the school day ends, because they are fearful for their safety. An African-American student at this school enthusiastically described the single activity that she has found available:

> My English teacher, she started a group for girls, cause we don't have no girl activities, but somebody donated a thousand dollars for us to start up our little group that we call 'Girls in the Hood.' That's coming along good. We make a magazine, we write articles about sisterhood. It started about 2 months ago, and we go on trips and stuff. Like we just went on a trip last Thursday. We went to a writing workshop.

In most schools, extracurricular activities also include programs of academic enrichment. Many students spoke enthusiastically of academic competitions, such as the Science Olympiad, academic decathlons, and math competitions, as well as school and regional science fairs. For some of these activities, students must be selected for participation by teachers, while others are open to all that wish to participate.

In some schools, notably those in upper-middle-class neighborhoods, another aspect of extracurricular activities are social service projects, often initiated by teachers at the middle school level as a way to heighten student awareness of the larger world. Sometimes this is introduced as a part of "multiculturalism" in the curriculum, alerting students to differing populations and differing needs. Typically, students select a cause and raise money for it within their own families by selling tickets to school dinners or selling various. One student commented:

> There are food and clothing drives for the needy. Right now the executive cabinet is doing something for the Leukemia Foundation. We are making hats for sale with the school logo on them . . . . We are working on our eighth-grade gift, and we will contribute this to the Leukemia Foundation. There is also a spaghetti dinner or a pancake breakfast. These are fund-raisers. (Eighth-grader, Vanderbilt)

Parents also talked about the role of extracurricular activities in their students' lives. A high school parent at Springdale raved about the opportunities her daughter's school offered:

> If the parent is encouraging their child, and you have the type of child who is geared to buy into the school community, they can really extract a lot of experience. And then you find a niche here. Everyone is not a theater person, everyone is not a musician, but you may have a math scholar, or you may have a chess scholar, or you may have an athlete, or you may have a singer, or you may have a writer. And I think that's what's so important.

For many parents and teachers, it is the pursuit and nurturing of individual interests that seem valuable. For some students, these activities also involved a strong social aspect. For example, students in one of the theater groups spoke with pride of the number of hours spent preparing for a performance and of the friendships that grew from common interest and shared experiences. For other students, however, these choices may have more to do with building a resume and bolstering college applications. Students attending high schools where the vast majority will attend college know that they must distinguish themselves from others with similarly excellent academic records. For such students, choosing extracurricular activities can be quite calculated and lead to a life of frenzied activity as early as middle school.

A group interview with students at a large urban high school where most go on to college generated an interesting discussion about the variety of opportunities available and students' motivation for involvement. One student noted:

> I would say that a lot of people use extracurricular activities on their college applications. It looks good for the college recruiters. Like languages. Or you are president of student activities or something. (Eleventh-grader, Springdale)

Each school of this sort has its own legend of the rejected student who "only" excelled academically. One such story at this same school was about

> . . . . a kid who graduated with perfect grades, was class valedictorian, was third out of 1,100 in his class. He did not get into his school of choice because he had done soccer all 4 years and that is it. They want more than just one activity. The colleges want someone who is involved, who is spread out, who spreads themselves out, and who does not do one thing throughout high school. (Eleventh-grader, Springdale)

Such stories are indicative of the pressure some college-bound students feel to appear "well-rounded," hoping that they will be able to develop an appropriate roster of activities for their college admission applications.

After-School Activities

For many students the school day ends by 2:30 p.m., but students vary widely as to when they actually leave school, as well as in the degree to which the remaining hours of the day are structured and planned. How they spend their time after school depends on the availability of community activities, personal aspirations, family finances, the encouragement and involvement of parents, and peer influence. Some lead remarkably complex lives and may appear as harried as their corporate parents; others may focus on just one or two activities, while others seldom engage in organized activities outside of school. Here are two portraits from our interviews, describing the use of after-school time:

> I spend about 2 hours hanging out with my friends. If I get home about 3 p.m., I eat—you know, anything I can find, then watch TV, cartoons mostly, till about 5 o'clock. Then I go outside for a little while and play ball with friends, then I play video games and then go to sleep. (Male student, South Central)

> I stay in school until about 4 or 4:30 p.m. because I have to study for the academic decathlon, or I go to the computer lab to finish a project. I also take classes at the university, so I have projects I have to complete. Other days I might have to go to pom-pom practice or swimming practice. I usually get home after 4:30 p.m. I relax a little by listening to classical or soft rock music

> or looking at TV for about an hour . . . . At about 6 p.m. I start my homework, and I finish about 9 p.m. (Female student, Uptown)

For parents of adolescents, knowing that a child's after-school time is spent in planned school or community activities serves multiple purposes. In addition to providing worthwhile activities for their adolescents, working parents, likely to arrive home after 5 or 6 p.m., hope that organized after-school activities will keep children "off the streets." As one mother of children in Springdale said, "I've tried to have my kids in different activities, to keep them out of trouble." Many parents expressed fears about adolescent use of unsupervised leisure time. Recent studies from the National Center for Juvenile Justice show that the peak hours for juvenile crime are 3 to 6 p.m., the period between school closing and parents' arrival home.

Custodial daycare programs that provide supervision for students during this period of time are most common at the elementary level in the United States, exist in some middle schools, and disappear by high school. By early adolescence most after-school programs, both in the schools and those in the community, are interest based. The hope is to engage student participation. One middle school parent described an array of after-school programs in her community from 2:30 to 4:00 p.m. that included "a homework program for math and reading, computer class, science class, music, and tap dance. And if they don't participate in the things here at the school, then at 4:00 p.m. there are park district programs."

For students in wealthier neighborhoods, after-school activities often include a range of private lessons, from ballet to violin to figure skating. Again, a strategic focus on the future rather than strong interest on the part of the student may drive the choice of after-school activities, and parents in affluent neighborhoods initiate this process for their children at quite young ages. Middle school teachers in these communities spoke of students missing school for activities that parents felt took precedence and of the pressure students experience not only to keep up with demanding schedules but also to meet parental expectations that they will distinguish themselves in areas of individual talent and interest. A mother describes her seventh-grade son's time after school:

> On Mondays he takes guitar lessons. He is a member of a traveling ice hockey team and has been on the team for 4 years. They have practices during the week, generally in the evenings, anywhere from 6:30 to 10:00 p.m. Then on weekends they have ice hockey games. He also has a paper route on Wednesdays. I help him get his papers delivered. With my husband he's gotten into biking and is competing in different events. He sets his own goals. He's trying to do century rides-bike 100 miles and you earn a badge . . . He's building his own bike . . . . He has a lot of friends over after school . . . . He just did a video with a friend for his social studies class that took about 4 days

> to script. It was the story of the Lewis and Clark adventure . . . . On Thursdays he stays for math club. He was one of the competitors at the state math and science academy and he placed . . . . Sundays we go to church together, and Wednesday nights I teach a group of seventh-graders from our church, who come to our home. (Mother, King Junior High)

Another area of after-school time is additional coursework, and several advanced high school students spoke of courses taken at nearby colleges, either on their own or through special programs. A number of minority students spoke of organized supplementary programs aimed at encouraging their path toward college. A 16-year-old Hispanic student in West City described his after-school time, this way:

> After school, I am taking another class at (the state university), calculus 3. So that is 2 hours, and then I come home and do the same thing. That is only on Mondays and Wednesdays. On Tuesdays and Thursdays after school I have to go to (another university) for another program, Upward Bound . . . . It is a program for minorities. We get helped a lot. We can take field trips to a lot of universities . . . . We go to other places, like Washington, DC and Hawaii. Tuesdays and Thursdays, we get a tutor, mostly math.

An African-American freshman from Metro City described a similar program at a nearby university, where he took classes on weekends and spent 6 weeks in the summer. Students involved in these activities seemed highly enthusiastic, but expressed concern that not all students had such opportunities nor took advantage of them when they were available. Enrollment processes seem somewhat haphazard or at least not obvious to all eligible adolescents, and students spoke largely of having been given individual encouragement by teachers, who identified those who might benefit and provided the information necessary for registration.

Homework and Studying

One of the predictable after-school tasks for most students is homework or studying. The amount of time devoted to these pursuits ranged widely, as did the priority that either was accorded. Students also seemed to vary in their understanding of what kind of work is expected outside of class beyond the specified assignments and whether "studying" was a routine activity or reserved for pretest nights. Previous studies have indicated a considerable range in student reports of time spent on homework; according to the most recent figures, nearly a quarter of 13- and 17-year-olds surveyed report spending no time on homework, nearly a third report spending less than an hour a day, and just over a quarter of both age groups report spending 1 to 2 hours (NCES 1995).

The time students actually spend on homework is difficult to determine. Many students claim that it varies from 30 minutes to an hour, perhaps more before a test or when a project is due. Those who claimed up to 3 or 4 hours a night often qualified that with a disclaimer about the variety of interspersed tasks. High school students, whose studying is less monitored by parents than that of their younger siblings, often spread their homework throughout the evening, doing it between phone calls and TV programs. As one 15-year-old replied:

> Like when there is a game on, I'll watch. Then at half time I do my work and then comes second half. That is probably why it takes me 4 hours to do my homework (laughs). If I went straight through it, it probably wouldn't take me that long. (Ninth-grade male, Hamilton)

Another 15-year-old said,

> How many hours of my day are spent on homework, or how many hours am I doing homework? If I have 2 hours of homework, it might take me 4 hours, because I am a procrastinator. (Tenth-grade male, Springdale)

The amount of homework assigned varies with the type of classes in which students are enrolled. Students on a college-preparatory track may have more rigorous assignments than others and expect to spend more time on homework. A high school freshman reported that "on the weekend I have about 3 or 4 hours of homework to do, because I have projects all of the time, papers to write, and research to do." A college-bound senior, a recent immigrant in a poorer school who has seized all that has been offered to her, enthusiastically described 3 hours a night of work that included assigned work, optional activities, and preparation for the two college courses she was taking on weekends.

> Right now I am focusing on my American society class because we have a mock trial coming up. I also spend a lot of time on chemistry and calculus. I usually do my French during school . . . . And I'm reading a Russian novel to prepare for a play that an English class is going to do—it's not my class but the teacher asked if I wanted to accompany them. I'm rereading the novel on which the play is based—I thought it would be a good idea to do that. (Twelfth-grader, Uptown)

Not all students found homework so interesting, particularly at the middle school level, where assignments may consist of repetitious practice problems and fill-in-the-blank worksheets. An eighth-grade male student at Vanderbilt noted:

> I don't do all my homework all the time. Maybe if I don't have enough stuff to do, then I'll do my homework. But usually I just come in and do it in advisory (class) and have all my homework done. I wish I had more challenging homework. I would do it.

The nature of homework. One might logically expect that "homework" would consist of tasks that teachers expect students to do at home. It appears increasingly common, however, that homework is often done in school and simply represents work that teachers expect to be done independently, usually before the next class meeting. Class time may be provided for this, particularly if the planned class lesson ends early, or students make use of study halls, advisory periods, or lunch time. Accordingly, answers about the amount of time students spend on homework need not indicate the time spent after school on this enterprise. An eighth-grade junior high school student, asked about the amount of homework he had, replied:

> The teachers usually try to assign about 2 hours, but I can usually finish in a short amount of time, 30 minutes to an hour or less, because some will let you do it in class and we have a study hall course that everybody is in.

Two 11th-grade males, interviewed together, also called this a common practice at their school. Homework consisted of what they were unable to finish in class. One, who described working at a part-time job from 3:00 to 6:00 p.m., followed by basketball in the park till 8:00, said:

> Then afterwards I will go home and do my homework, if I have it. Most of the time I complete my homework at school. Usually I have homework in English and math, but I have time to do it in class.

Teachers, especially those in poorer schools, offered their own rationale for the practice of providing class time for homework:

> Studying—that is a low priority to be honest. I know it is. That is why teachers have to find ways to get them to study while in class, while they are in front of us. And that is bad, because it takes away a lot of instructional time and activity time, time that you could do something else if they did homework. But many of them don't take books home, so we know they don't study. (Business teacher, South Central)

These patterns may lead to less use of class time for direct instruction. Homework time in class is generally silent, solitary time, with students completing work individually.

Using class time for homework was also attributed to a lack of resources at South Central:

> I usually leave time in my lesson plan for each one to at least get a start on the work so that at least they can get half of it done, and they will complete the rest even in another class or during lunch. I also don't include much homework. In fact, a lot of the time I have no choice, because we only have one set of books for the 160–175 students that I teach, and they can't take

> the books home . . . . We really just have very little resources. And my first year here I did give out homework, and I found myself losing books. I was also setting students up for failure, because they wouldn't do it, and I was having all this anxiety because I thought that they weren't doing my homework because they didn't like me. You just learn that that is just the way things are. (English teacher, South Central)

Across town at Springdale High School, a teacher gave a different view:

> I would say that each teacher gives anywhere between a half-hour to an hour of homework per night, sometimes less. So the kids may have a couple of hours of homework. If the kids are carrying five courses, then they may have 2 to 3 hours of homework, but they do have study hall time during the day to do the homework . . . . Generally, most of the kids do their work. There are some kids that grasp the concept and find the homework tedious. (Math teacher, Springdale)

Students may attribute their academic achievements to the amount of homework assignments given by teachers. At Uptown, two students who reported making B's and C's on average were asked if they wanted to make A's. The first commented, "Everybody does," and his friend said, "Yeah. We do all our homework, but teachers don't give that much homework—so we don't study that much."

Studying. For some students, homework and studying are synonymous, and if there are no homework assignments, then there is no studying to be done. Or the term "studying" may be used to connote the review of class material, an activity that occurs mostly at test time. A female vocational school student, when asked if most people study after school, replied:

> No, I study sometimes, like if I got a big test, but I don't study too much, cause you probably forget what you studied the night before. I go over what I think I know for sure, and when the time comes, if I pass, I pass, and if I don't, I don't—that's how I feel

Many students seem uncertain about what the process of studying entails, indicate a limited repertoire of study strategies, and appear poorly prepared to do academic work outside of class other than short assignments. An eighth-grader at Metropolitan said that she didn't take notes during her classes because "when we take tests, I want to see how much I learned. I don't take notes and I don't study for none of my tests, but I always pass them." She explained that this enabled her to see just how much she had learned directly from the teacher. "See, if I study, I be forgetting stuff, that is why . . . . You forget cause you study and you be like trying to think and stuff. When you don't, it just pops in (your head) when you see it on your paper." She claimed she tried studying for a test, got a D, and "then I decided, I ain't gonna study no more."

Other students may limit the time they spend on homework and studying because they have chosen to focus their attention elsewhere. Some acknowledge direct competition between homework and social life and a willingness to accept the consequences:

> For English and drafting sometimes I took the book home and studied on my own. But not all the time. People who do it all the time might not want to go out much. I want straight A's, but I will settle for a B. It's not a bad grade. (Eleventh-grade male, Uptown)

Parental involvement in homework. Parents expressed concern about the near absence of homework for some students, wondering how it is that their children could get it done during school, a phenomenon that seemed new since their own school days. Some seemed to feel that students would be better served by being assigned more homework.

Parental involvement in homework declines throughout adolescence. Parents spoke most often of monitoring time, assuring that their children were attending to required assignments. This was most common among middle school and junior high parents.

> There has to be a homework time. There's no TV, no radio, no anything, until everybody's done with homework . . . . Homework is a must in our house. And they have to prove to me that it's done. (Mother of four children, fifth through eighth grade, Metropolitan)

After middle school, parents are less likely to be involved in checking the work or providing direct assistance. This may be related to adolescents' growing need for independence as well as to the increased complexity of the subject matter and the difficulty some parents may have in providing assistance. Students spoke of the types of assistance they do receive. A 17-year-old female in East City mentioned a dad who "writes for a living" and helps with her papers, and a 15-year-old African-American male at Hamilton spoke of the assistance his dad, an educator, had provided in math in earlier grades. Others spoke of general support from parents, as well as older siblings, with computers, math, and writing. In a number of cases, parental assistance and support was minimal or nonexistent.

Chores

Expectations about work around the house—"chores" that students are expected to perform—were generally moderate. When asked about a typical day, few students volunteered information about routine chores, but when asked specifically, most quickly generated a short list. This often included cleaning their own personal space, some minor help in the kitchen, other household tasks, and caring for younger siblings. As one mother reported about chores among the families she knew: "If they have chores, then they are very basic—picking up garbage, taking the dog for a walk, feeding the cat, making your bed, closing the blinds—not major chores like cleaning the windows." These chores were often distributed by gender, with girls more likely to report cooking and cleaning, and boys more likely to report cutting the grass and taking out garbage. Some families have structured systems, as evidenced in responses such as "this is my week to set the table;" in others, tasks are distributed in a more loosely defined manner.

The type and amount of chores differed from the norm in two settings: single-parent families and families of recent immigrants. Some high school students expressed a sense of responsibility to a single parent. One high school male commented that

> I cook a lot. I cook all kinds of stuff. I experiment sometimes . . . . I take out the garbage, mop, vacuum, you know, just help keep the house clean while she works. You know, she pays the bills and all, so I try to help, do my part. You know, it's just me and my mom.

In families newly arrived in this country, family responsibilities extend well beyond expected chores. Often the first members of their family to learn the language of the new country, children may be thrust into adult roles, negotiating with landlords, doctors, and government agencies on behalf of their parents. A counselor at a high school with a large immigrant population spoke of the lost school time among students expected to shoulder these responsibilities, as students were regularly needed to accompany parents to appointments in the community.

Family

Many students, in describing the rhythms of their days, mentioned time with parents and siblings. Although busy calendars seem to prevent many from arriving home till late, the family dinner still takes precedence in a number of homes, at least on certain nights of the week. As one parent of a junior high school son and high school daughter explained:

> We try to have meals together as often as we can, somewhere between 5:30 and 6:30 p.m. But I have a daughter in high school, and her schedule changes, and that kind of changes as to when we eat. But gathering together means kind of talking about the day as well.

In many cases it is the students' active lives that prevent regular dinner times, but parents also have other roles that interfere: "I'm on a lot of committees and stuff, so a lot of times I fix food ahead of time, and my 17-year-old can feed the youngest one if I'm not home," said one parent. Another student, an 11th-grader in West City who has sports practice for 2.5 hours daily said, "I always come home late. By that time they already ate. My other brother, he is older and he is going to the university, so he eats at different times. My mother and dad eat together." He also commented that the family did not spend much time together: "I think that we should spend more. Everyone is so busy, and when my parents come home from work, they are so tired."

Many younger adolescents described some regular routines with family on the weekends (e.g., "We always have pizza together on Friday night"). As another junior high student noted: "On the weekends . . . . I try to spend as much time with my family as possible, because my parents are at work a lot during the week." For those whose parents are separated or divorced, the weekend is often spent with the noncustodial parent or with other relatives. Many African-American and Hispanic students described regularly scheduled time with their extended family on weekends, frequently describing Sundays routinely spent at an aunt's or grandmother's. A 10th-grader at Uptown commented that "Every Sunday I go to my grandmother's house with my mother. The whole family is there, my aunts, uncles, everybody."

Leisure Time

Other casual leisure pursuits among adolescents include socializing with friends; physical activities, such as basketball, biking, and rollerblading; watching television, listening to music; and computer time. Television is omnipresent, with nearly all students mentioning it among their regular activities. Some described a routine of daily viewing, either immediately after school or after dinner, while some families reported regular television viewing during the family dinner. In some households, the television is a constant, left on throughout the evening, a problem noted particularly by students in small apartments or crowded homes, who must do homework in this environment. Others are regular viewers; one student commented: "On a good night I watch 3 or 4 hours a night [and he names each of the shows by night of the week]; on a bad night maybe 1 to 2 hours." Another stated that:

> I mostly watch sports. I may watch a movie on the weekend, but usually during the week I don't have time to watch television, other than sports or sometimes a sitcom. My big television night is Friday. It's the end of the week and I like to unwind. (Tenth-grader, Hamilton)

A substantial number of students, however, described fairly disciplined habits that included restricting their viewing to one night of favorite shows or taping for later viewing. Even as early as the eighth grade a student reported that "I tape my shows because I am so paranoid about my time for studying." In some cases, these patterns are regulated by parents, who have set restricted days and hours for television viewing. As one junior high student described it:

> I used to watch a lot of TV in grade school. Then my mom and I started talking about my junior high and high school and how I can't be doing that anymore, because we have tons of homework. I probably watch about an hour and a half during dinner. We might watch a show everybody likes.

A parent of an eighth-grade daughter described her family's approach to television:

> TV is present in my home, and it tries to play more of a role than I care for it to, and they're not always monitored . . . . She tends not to be into watching educational programming, so it's always recreational entertainment. Usually we can't look at television until Thursday evening . . . . Depends on how well the rooms look and how much work you've gotten done, but generally we're striving to keep it limited.

Student descriptions of computer use, mentioned most frequently by early adolescent males, ranged from playing video games to browsing on the Internet to programming or "hacking." A number of students play musical instruments and must work both lesson and practice time into their week. Musical interests are eclectic, representing the range currently available to teenagers. Some students mentioned listening to rap, some to rock or alternative music, and a few to classical. Some were devoted to particular styles and some devoted simply to listening to music. As one high school junior said: "Music is a huge part of my life. I leave my stereo going 24 hours a day. It is probably going right now. There is always music."

Many regularly rent videos and some are attracted to a particular genre, such as horror films or comedy. Recreational reading was seldom mentioned. When students were asked about reading during their leisure time, they most often mentioned horror books, science fiction, fantasy, and comic books, along with adolescent magazines. One student said he read "movie books, like ones they made into a movie." A college-bound senior, asked about books and magazines, said:

> Books—I read what is assigned in school. Books take a long time and you can read only a couple of pages at a time. They go too slow for me. I read *Newsweek* and parts of the paper . . . . Light stuff, not world news.

Recreational sports were most commonly mentioned as a leisure activity by males. In low-income areas, in particular, many described a daily routine that included local basketball with their friends. This activity also is of importance to some adolescents as a potential, however unlikely, career goal. A parent at a high school in an extremely low-income neighborhood commented that:

> Basketball is what these kids like and grow up with. Not many kids love to do school work, but they love sports. The parents encourage them to be in

> sports, because they can make millions of dollars a year. It's a ticket out of here, out of the ghetto. And they have more faith in sports getting them out of the ghetto than academics.

Weekends seem to provide the least structured aspects of a students' week, with time to sleep late and to relax. Students also spoke of family time, religious services, and special academic programs attended on Saturdays. Leisure pursuits during the weekend most commonly include shopping, seeing movies, and socializing with friends. As one student described his weekend:

> I go to baseball practice, then go home, relax there, then I might call my friends and see what they are doing. We might go to the park or go into town. Sometimes we might go to a movie. Sundays are my relaxing day. I don't do much of anything. I might go to the library and study or I might talk to someone on the phone. But Sunday is usually my day to catch up on homework that I didn't do, watch sports, sleep, and get ready for the week basically. (Tenth-grader, Hamilton)

A female described a similar pattern:

> I used to be a part of this dance troupe, but now I am taking a break. I usually catch up on movie videos, catch up on homework, hang out with my friends at the mall, or just hang out at home. (As for Sundays), well, my mom used to be religious, but then she joined the health club and she has been there every Sunday morning, (so) that is her religion now . . . . I do on Sunday what I do on Saturday, except that I procrastinate really badly, and Sunday is my catch-up-on-homework day. (Ninth-grader, Hamilton)

Another, who spends most weekends with her grandmother, said:

> On Sundays I eat a big breakfast and dinner. My grandmother loves to cook. We go to church together. I am in the choir there and a lot of my friends from elementary school go there. When I am with my mom, I sleep on Sunday. (Ninth-grade female, Uptown)

Social Lives

Unstructured leisure time is often spent with friends, sometimes just "hanging out." Often for girls, as well as for some boys, weekday social interaction outside of school involves talking on the telephone, reviewing and interpreting the day's events. Asked about how she spent her time after school, one 17-year-old high school female replied:

> I spend most of my time on the phone. I would say at least 3 hours a day. I also have to do chores—do the dishes sometime, vacuum, not much. Mostly I just talk to my friends and this one guy who is almost my boyfriend. I also

> spend a lot of time with my best friend—we spend a lot of time together. We talk about what happened in school.

Boys spoke more of time spent "hanging out" with friends, though as students got older this often happened in mixed groups. There were widely differing standards about the amount of time that students spend in peer interaction outside school. For many, it is a routine part of after-school time, relaxing and talking with friends, perhaps playing sports together. However, among the more studious, weekday afternoons and evenings seemed devoted primarily to school-related activities, with the weekends providing time for social activities. Even as early as middle school, some reported how this had changed since their elementary years:

> I like to talk with my friends at school, but I don't hang out with them as much as I used to after school. It always seems I can't find time for that, even though I'm still really good friends with them. (Student, King)

For high school students with heavy academic loads and several scheduled activities, there is even less time for socializing during the week. As one high school student, asked about his social life, described it:

> It was a high priority earlier, but as I get more serious about what I want to do, I find that I don't have time, especially during the week. I may talk to a girl between classes, during lunch, before or after school. I might talk on the phone, but not much during the week. I do go out on the weekends. For some of my friends, though, it is a higher priority. (Tenth-grade male, Hamilton)

Some of these academically-oriented students described combining studying and social life. One student said, "During the week, if I want to hang out with my friends, I just go to the library with them." For others, particularly those less studious or less engaged in school, time with peers routinely occupies many of the hours after school, though how it was actually spent was ill defined. Among this group, some older students who have paired off are also likely to see each other regularly. One junior male commented that he usually saw his girlfriend for a few hours every day:

> We don't talk on the phone much, because I just usually walk over and see her. We go out, the rest I can't say on tape. I usually see her after I get back from the park.

Parental control over time spent with friends varied, as did their expectations about what was appropriate. Some Hispanic families interviewed expressed the opinion that it was inappropriate to visit with school friends after school, and this seemed to be particularly enforced for daughters.

Discussions with students about their social lives made it clear that "dating" as it was known a generation ago is clearly passé in the communities studied. Adolescents appear more likely to spend time in-groups than in pairs. A mother of six summarized what many expressed in our interviews:

> When I was young, the definition of dating was a date. You got called up and asked to go to one event. But that is not a date necessarily today. Today it is much more group oriented. (My daughter) might go out with one or two girl friends and then meet up with a group of boys, and in that group may be the boy that she is dating at the moment . . . . With the exception of dances and stuff like that, I have not had a lot of experience of my kids dating one person. With my daughters, I can count on one hand the number of times a boy has come to the front door to pick them up for a date. It is more groupie. (Mother, Springdale)

Students who do pair up are "going with" each other, a slippery term with evolving connotations as children age. Exclusive relationships certainly exist, but as one teacher said "Dating as something proprietorial is not as important. 'This is the one and only' is much less pronounced." A ninth-grade female at Hamilton, asked about dating, said:

> I am friends with a lot of guys, so I hang around with them. I am sort of interested, but I have time. For most of my friends it is medium to high (priority), for me I guess it is medium. I talk on the phone around 2 hours, about half talking to guys.

Weekend social life may include "partying," which often connotes the use of alcohol or drugs. One student gave the common lament that in his town "there is not a lot to do. You can drink if you drink, but I don't personally. So we just kind of hang out, we go someplace." Asked if that was typical, he responded, "No, most people drink and go to parties . . . . We are not into it yet." His comments, and those of others, seem to imply that partying and drinking is an expected activity during the upper years of high school. Middle school students also talked about "not partying *yet*." One group of junior and senior students at Springdale, asked how they spend weekends, described the changes over the course of his high school years.

> Partying just began sophomore year and it is really in swing junior year. Freshman year, you do not have a lot of friends. Or you just do what you were used to doing in junior high. You do not have a car. Once you have a car, you can go out.

Asked to describe partying, another student in the group gave an example:

> This weekend, Friday, I went to a friend's house with his own apartment. We go and hang out over there. We drink. Smoke pot. I do not drink much myself,

> but I smoke a lot of pot. (laughs) I am not into chemical drugs. (Eleventh-grade male, Springdale)

Parents were either less aware of these activities or chose not to discuss them, and teachers appeared to have limited information about students' social lives. One teacher noted that partying was no longer "the big trend it used to be" and thought that students "do things socially and do things in groups," but I think they are doing things with smaller groups. And I do not think that parties per se are one of the things, at least not one of the things I hear them talking about." (Math teacher, Springdale) A few teachers noted that partying and drug use seemed to have increased. Perhaps the scale of the activity has changed, but students themselves still reported that at least at large urban high schools, many students find that partying on weekends is an expected aspect of high school social life.

Employment

Part-time employment is commonplace for adolescents in the Untied States, with approximately 60 percent of high school sophomores and 75 percent of high school seniors engaged in paid employment (Bachman & Schulenberg 1993; Steinberg & Dornbusch 1991). Such employment serves both as a means to earn money and as a symbol of growing independence and quasi-adult status. As one first-year high school female said,

> I don't have (a job) now, but I want one for the summer to learn responsibility and to see how it feels to make your own money. The money is not a big deal, because my parents usually give me money, but I think it's better if you earn it. It makes it more important.

Government regulations prohibit formal employment under 14 and restrict the working hours during the school week for those old enough to get a work permit. Accordingly, few of the middle and junior high school students interviewed had "real" jobs. But even 12- and 13-year-olds spoke of a variety of part-time jobs, such as babysitting, paper routes, and lawn mowing, that keep them in pocket change and seem to provide some sense of responsibility. During the high school years, many students have regular part-time employment either after school, on weekends, or both, and even more expect to work for pay during the summer when school is not in session. For example, a 15-year-old sophomore said he did not have a part-time job, because "My parents really stress education and they do not want me to get a job during the school year, because it will take away from the time I spend at school," but that he is "planning on getting a job this summer though. I have been babysitting since I was in fifth grade."

The primary reasons why those interviewed work is to earn spending money; to save toward a larger purchase, such as a car; or to begin to save for college expenses. The larger question is whether students are meeting real or perceived needs. Many students from upper-middle-class families hold part-time jobs, although it may not be an economic necessity to do so. As one teacher commented: "The wealthier kids work to gain money to buy things they want. Kids have what they think of as economic needs that would not have been considered a need when I was in school."

Many parents also seemed to support the value of working at a young age. The mother of an eighth-grader described her approach:

> I expect her to baby sit for other people, to make her feel responsible for earning some money of her own . . . . But it is not really the money. I want her to have her own money, but also the structure. I know where she is going to be.

One mother at Springdale, whose youngest child was 15, said that all her children had worked at some point during high school, though it might not have been financially necessary:

> I think that it is a big thing for American teenagers, to have something that you are doing, that you are going to get some money. You may be doing it for a specific goal, to buy a car, to go to college. But it might also be just to have money in your pocket every day . . . . My kids have worked because they want to have that feeling of independence. (They) want to go out and have pizza or buy a new pair of shoes and not have to ask mom.

Working after school also has symbolic value. The same mother continued:

> My two girls, they both (got) part-time jobs because they thought it was the neat thing to do. And it also gives the kids responsibility and a feeling of being grown up. They want to get a little extra money in their pockets, but also all their friends have jobs . . . . You are almost a little bit out of it if you do not have a part-time job . . . . I think that kids learn an awful lot from part-time jobs."

She added that her son had been small for his age until fairly recently, but that he "had a part-time job, which made him feel very grown up . . . . It wasn't the money, it was 'Here is responsibility. We think you can handle this.' And that is still a big deal for him."

Most adolescents' jobs were primarily in service roles and retail sales. Students we interviewed described their jobs in food service, movie theaters, day care, retirement homes, clothing shops, and food stores. Those in offices or in more professional environments often described these as positions in the family business or in positions arranged by their parents. It is not uncommon for students to work sporadically, moving from job to job. In most urban areas, at the time this study was done, entry-level positions at minimum wage were so readily available that students were able to work for a few months, quit when school demands took precedence, then begin the cycle again a few months later.

Not all students work while attending school. Not all students want to work, nor are all those who want a job successful at gaining employment, in spite of the availability of entry-level service positions. Some of the most academically engaged students from families in the upper-income brackets do not work during the school year, and some with high level of involvement in sports work only sporadically, if at all. The other group that appeared least likely to be employed among those interviewed were minority students in the poorest neighborhoods, some of whom despaired at discrimination and their perceived unemployability. A parent volunteer in a vocational school noted:

> I talk to a lot of kids who want a job, but who can't get one. If a kid's pants are baggy or he has an earring in his nose they won't hire that kid, because of the way that you look. Your appearance makes a big difference. And the kids know that. Like my son, I took him to a place once and it was him and a white guy and they told my son that they would call him, but they hired the white guy on the spot. My son saw it and it took a lot out of him. When stuff like that happens, it makes the kids think that they can't make it out there in the world. That's the reason that a lot of them turn to selling drugs. They feel that they can't make it out there.

For those who are employed, balancing part-time jobs with schoolwork may teach skills in managing time, a desirable goal according to both parents and teachers. A parent of three, two now in college, remarked that:

> Well for my daughter it seemed like she was managing her time. I think it helped her managing time and prepared her to be more responsible, so that she knew she had time for work, time for sports, time for recreation.

Similarly, an honor roll student, who worked part time in a flower shop during his senior year in high school, was asked if this interfered with his studies. He replied:

> No, because I've done more work than that. When I was a junior I played water polo. I'd go to practice in the morning, then go to school, then go to work. It just depends on how badly you want to do all these things. I wouldn't advise everyone to do this, because it was really hard. I'm not doing a sport right now, so I want to get a second job. I feel like I have too much time on my hands and I need money for college.

Other students spoke similarly of the need to have something to do and of becoming more organized in the process. Such students are efficiency experts concerning time:

> I've got an advantage with my job, where I can go and I can work on my homework, and when someone comes into the store I can help them, and when they leave and it is slow again, I can work on my homework. I have two study halls also during the week, and I use those to do my homework. (Eleventh-grader, Springdale)

Many students seemed to view time as something that must be filled up, booked, and scheduled; unstructured leisure time appeared to be rare.

Perceptions of School and Education

Role of School

With all that the average student manages to do in a week, what role does school play? How important is it and how central a concern? One common view, that school is the expected focus at this time in life, was summarized by a middle school student at King:

> Well it basically is my life during school days, cause in the summer I have a job to earn money for clothes and stuff. School is like important cause we have to go and attend and pass and that's how we get jobs and stuff, education, and that's basically what I do. Even if I'm not at school, I'm basically being at school because I'm doing homework and studying for school. So it plays a big role.

Students such as this accept school as an important part of their lives and appear not to question its centrality and its purpose. Accepting its importance, however, does not always mean putting school first. A 16-year-old male, who had described a rich pattern of academic involvement, good grades, and an orientation toward college, when asked "how much of your life revolves around school?" responded "I would say a lot. About 50-60 percent."

The roles most discussed by students as competing for time and attention were friends and athletics:

> I think with high school kids, their first priority is friends. They might be into school and everything, but I guess they are more into friends. School would

> probably come second. And sports . . . . A lot of them are more into sports than into school. (Eleventh-grade male, West High School)

Those seriously focused on athletics may perform a complex juggling act and may make decisions about whether to focus more attention on academics or sports. A 17-year-old gymnast notes that student athletes differ in the emphasis they place on academics, suggesting that this varies along several dimensions:

> (It varies by sport) and different sizes of teams too. The football team is really big, so they are going to have more people that are better students and more people that are not really good. The gymnastics team only has 16 people, so there are fewer extremes. I would say overall that the smaller the opportunities for doing the sport later as a career, like professional baseball or football, then the better the students. When you are younger and you play softball and stuff, there is always the thought that you could make it your job, and that is like a dream. Gymnastics, even if you go as far as you can with the Olympics and stuff, your career is over when you are 25 and you do not make any money from it. So you have to be ready to do something else when you are done.

A large number of students simply are not engaged in school. As one high school junior at Springdale described it:

> For some people I know (academics) are a major part of their life. And they go home and study. But for most people, they just do the homework, they study, they do what they need to do, but would almost prefer not to.

A high school teacher in Metro City responded to a question about the role of school in students' lives:

> I don't think that they see it playing a very big role. I think they see that they have to go there and so they go. They don't see where school is going to lead.

Many teachers struggled to interpret why some students appear to view school as a low priority. A high school teacher commented that the students who are doing well

> . . . . are the ones with the incentive. Many students don't have that incentive, because you have to feel good about yourselves first. I think that a number of students don't feel good about themselves, because nobody has taught them. No one has said, "You are so special, you are extraordinary, or look in the mirror—you are so pretty!" No one gives them a hug, but I do. We are not supposed to touch them, but you almost can't get around it, you have to give people a pat on the back. (Business teacher, Uptown)

Some students discussed having been alerted by parents as to the central priorities. A junior high student at King said:

> I think about my friends a lot. And I want to hang out with them a lot, but my mom and dad always give me sermons. You have to sit down and set your morals . . . . like, your friends won't always be there, but your education will. You will need your education to move further in life so that's basically the most important thing to come to school for, not your friends.

Few students approach this as a dichotomous choice, however. For some, school may compete for attention with other interests, but for most of those interviewed, school was a place to meet multiple goals, perhaps simultaneously. As one Springdale parent described the priorities in her children's lives:

> If I had to give it an order, for my kids, I would say school one, friends two. With the exception of (one of the children)—it might be school, gymnastics, friends. And I do not even want to say one, two, and three, because school and friends are really tied into one another . . . . Family is also another big main focus, but I do not think that they think of it as such. It is just taken for granted. Which is OK. I want them to feel that this is the place where they do not have to think of it as any particular priority, or number. It is just there for them all the time.

An administrator at Hamilton, noting the range of involvement in school, commented that "some kids' needs are answered here and others are not." Others described the drawing power of money:

> I think most, especially our boys, are interested in making money. They're not into education the way that I think they should be. They come to school at various times, when school begins at 8 a.m. . . . Those that work, that is their responsibility—they may be trying to help mom with the little ones, because welfare is not enough to make ends meet. It takes a lot away from the kids. I'd much rather see them in school than trying to take on the role of adults. It is taking a toll on the kids. Money is such a priority—sometimes they just like to have money in their pocket. And drugs—you can make a lot of money. I had one student tell me that he makes between $500 and $1,000 a night. (Parent volunteer, South Central)

One student at Hamilton commented that the range of involvement in schooling varied because:

> Some people's focuses are placed in schooling from the time they were very young. Other kids grew up with lives where, you know, you do not really need school, it is just something you have to do. Different experiences make you focus on different things.

Purpose of School

Students were most likely to see the purpose of education in pragmatic, generalized terms. They believe the diploma is necessary for a job or that doing well in school will ensure admission to college. It was common to hear students say that "If you want a job, you need an education" or "You got to have a high school diploma to get jobs," but rare to hear any degree of detail about what they thought they were learning that might prepare them for any particular type of work. Similarly, those headed for college described broad outcomes and purposes: "Education, prep for college, social things . . . . life skills, education."

Others saw school as a place to build life skills or to become more broadly educated. A 14-year-old African-American female at Uptown described a good education as "You learn to be responsible, to handle your money well, be well organized and well rounded. "A high school student in West City, the child of immigrants, spoke of the opportunity to "prepare ourselves for the future. Not really to prepare so that we can have a job in the future, but to develop your mind and to have better choices." His younger sister, a middle school student, described preparation for "a better tomorrow, a better future." Another male student at Springdale spoke of more general skill development:

> I am not learning a whole lot on one subject. Because I know I'm not going into math, I am not going into any sciences, not going into English, being an English teacher or having anything to do with that. I am getting more responsibility, teamwork, just little fundamental skills, working with people.

Such students often do not see a direct connection between coursework and their occupational goals. Even students hoping to enter the legal field described their English classes as useless in "real life." Students spoke infrequently of any discipline—specific purposes or outcomes, except in the area of mathematics, though they often criticized their actual preparation. One student, who had been accepted into a prestigious university in her region, said that she thought the high school diploma "ought to mean something" and that

> You should have what you need as an adult. I know how to take the integral of this and that, but last summer I got a checking account, and I had no idea how to balance it. We need a lot more practical stuff. My parents don't remember what they had in high school. My dad has to relearn it to help me. (Twelfth-grade female, East City)

In a group interview with high school students at Springdale, one male student commented that he had "learned enough to get by in math. I have learned enough to do my taxes and that is enough." Another in the group responded that "Ask me if I could graph trig functions for you now (and I could do it). But ask me next year, and I will not have a clue. We learn it, we remember it for a while, and then it is gone."

Not all students look ahead when thinking about the purposes of schooling. At the most basic level, there were students we interviewed who see school as an alternative to crime, unemployment, and a life on the streets:

> If there wasn't any school, like in the summer, then all kids do is just hang around the streets. Then when somebody asks them to hold this and they start selling drugs and things like that. School is keeping you out of trouble. (Eighth-grade male, Metropolitan)

Another student at the same school remarked:

> You don't necessarily got to go to school to learn. There are lots of people who don't go to school and are just as smart as me. (But) at my age . . . . can't get a job or nothing, so might as well go to school. (Eighth-grade female, Metropolitan)

Teachers are aware of the purposes of schooling from a vantage point different from that of students. A common concern of those we interviewed is that schools attempt to fill many purposes, only one of which is academic. As one high school counselor noted:

> The schools today, I think, try to fill more needs than they have ever tried to fill before. You're trying to fill social needs—educate the kids on all the social things—alcohol abuse, sexual abuse, conflict resolution, multicultural diversity. You are teaching so many things that used to be taught in the home. All this along with the expectation that you're going to educate them too. (Counselor, Hamilton)

Another teacher made similar comments:

> We as teachers are forced to be educators, parents, also counselors—I mean absolutely everything. With my own children, their teachers do not have to take them aside and say 'Y'know you really shouldn't be . . . . and "Where have you been?" You know, dealing with social problems that belong at home. And I find that you have to do that. They expect from the time that you bring them in school here at 9:30 a.m. until they leave at 2:30 p.m., you will teach them manners, you will teach them respect, you will also teach them how to be responsible people, and to follow up on something. (Science teacher, Metropolitan)

Responses to School

Student responses to school covered both general responses as well as comments that described specific aspects of school, such as teachers, classes, and school rules. We were particularly interested in the role that math and science plays in adolescents' lives and sought their responses to this aspect of the curriculum. There were also some differences noted in students' perceptions of school based on academic track, race, and gender.

It is not surprising that not all students find their needs met at school and that some are happier with their lives at school than others. Few students were openly negative about school, but many gave lukewarm answers, such as "It's all right, you know, you got to do it to graduate" or talked about friends who were disaffected. For the most part, students in this study had both good and bad things to say about the schools they attended.

Students often spoke of the overall nature of their specific school. Students at the elite high schools are generally aware of the reputation of their school and talked about the high expectations that are set for them accordingly. As one said, "I know that people see the name of Hamilton and think that it is a good school." Another at Springdale said that "In general, I am very happy with this school. I have to stop myself, because I take it for granted. This is one of the best high schools in the area. We really have everything. Everything that I could ever want." Others are aware that they have been systematically shortchanged; a student from South Central, a high school in the same community, said that "This school doesn't have many activities . . . . If they did, like volleyball, football, homecoming, more students would want to come to school and this school would be better."

The interviews also revealed the perception that one's attitude toward school may be influenced by peer judgments. In an interview with a group of junior high students, one said:

> I think that a lot of people that I know say they don't like school at all, but I think most of the time they are really doing it for what other people want to hear and sometimes it may be really what they think, but you should know that school should be really important for you. School could be better, but we all have to manage it.

Opportunities to be with peers, however, may be what students like most about school. Another student in the same group noted:

> A lot of kids say they don't like school and they don't like the work, but most of the kids like it because their friends are here every day and it's a way to see their friends.

Positive aspects of school. Some of the most positive comments about schooling came from those students who are in honors or advanced-placement courses. Our observations indicated that these are typically smaller classes with more challenging materials and instruction, and that these courses attract students who are more likely to be on task in the classroom. One high school sophomore at Springdale spoke of what he finds most interesting about school:

> If I am in a class and we are having a discussion, and there is a spark that is there, it really gets me going. Or if we are practicing some scene on stage and we have a moment and the feeling is there and we are really into it, then it is really worth it. I think it happens more in my classes, because I have the honors and AP classes, but I do not think that it happens otherwise too much.

Many urban schools must deal with a large number of nonnative speakers and provide specialized courses for their needs. At Uptown a student replied that the best thing about her school was

> An ESL program for about 30 percent of students—English and American culture. And it makes you want to be here and it gives you a good attitude. I also get to meet people from all over. I never thought that I would meet people from Vietnam, Africa, Mexico, everywhere.

Good teachers were praised by students and there were general characteristics that stood out across interviews. Students spoke most enthusiastically about teachers who made learning fun and interesting, who like teaching and like students, who have control of the classroom, and whose instructional repertoire includes more than lecturing. A male student at Springdale talked about the teachers he liked best:

> The teachers who are interested in the students. They are teaching because they like teaching and they like working with the kids. And you can tell the teachers who are working there just waiting for their pensions.

A junior at Uptown whose family had immigrated to the United States from the Middle East said:

> We have a lot of good teachers. Like my math teacher is one of the best. She is enthusiastic. She knows how to teach. I have had math teachers who write something on the board and then sit down. She teaches more advanced classes and activities.

In a group interview, four junior high students spoke of their favorite subject, math, and their favorite teacher, commenting that "She makes it fun, yet you still learn a lot." "She makes it fun. And it's easier to understand if it's fun to do." "Math is my favorite subject because of the way the teacher teaches it. She gets more respect than most of the other teachers." Another student in the group noted:

> I think when it comes to math, how I do is somehow dependent on how a teacher teaches it. Sometimes if a teacher goes too fast and I can't keep up and she doesn't help me, then my grades go down. Sometimes when teachers are really helpful, then I do better.

In some cases, students talked about favorite classes and their choices seemed based on either good teaching or strong personal interest in the subject matter. In the case of the rather limited vocational offerings we observed, utility was also a rationale, as it was for an African-American at South Central, who said his favorite class was electronics: "We make projects and learn about electricity and stuff like that, lights, radios, and stuff. So we know a little bit about fixing stuff around the house."

Math classes were mentioned frequently as favorite classes, primarily by those in accelerated or honors courses. Students seemed pleased to describe the pace at which they were working in comparison to other classes. An 8th-grader, who had been advanced to an accelerated algebra class reserved for fewer than 20 students, spoke with enthusiasm and pride: "We go pretty fast paced. Most of the other classes do only about a half a book a year, a third of a book a year, and we're all the way up there."

In general, positive perceptions of math and science classes were related to an affinity for the teacher, previous personal success in these areas, and interest in the subject matter. A ninth-grader at Hamilton commented that "I like science least because the teacher is kind of dry. I like geometry the most. My geometry teacher is very exciting and makes geometry really interesting. That is the big reason why I like it." Some students acknowledged that their attitudes about math and science had changed over time. One said that:

> I used to hate math and I really was bad at it. Now I'm in Scholars' Math and that's like my favorite subject now. My dad taught me, because I used to like basketball, and he would put basketball in a mathematical situation to help me figure it out better, and then I grew to love math. (Tenth-grader, Springdale)

Across the curriculum, students enrolled in honors, accelerated, or advanced-placement classes often spoke positively of their experiences.

> I have been in half regular and half honors. And my honors classes are definitely better in the way the students relate to the teacher, and the classes are more challenging and interesting. It is like you want to work to understand. And the regular classes, some of them are good sometimes, but often it seems just like tedious work. Like you are there and you are just working to do the work. It seems pointless. (Eleventh-grade male, Springdale)

Students cited a number of reasons for preferring these courses: more challenging material, more interesting assignments, better teaching, and more highly motivated students. Tracking was a controversial and frequently discussed topic. One honors student who spoke enthusiastically of his courses, who yearned for more demanding work, and who noted that the current system of tracking "was not motivating enough," said that "I would certainly encourage more tracking. And a lot of my colleagues, including teachers, would discourage more tracking."

Shortcomings and suggested changes. Students had many criticisms of their schools and recommendations for change. These criticisms focused on school rules, safety, activities, classes and teachers, and the effects of tracking. These concerns appeared with consistency across the cities and schools.

- *School rules*. An issue for some U.S. high school students is whether their campus is open or closed (i.e., whether students have the freedom during the day to leave the school and return, either during lunch or free periods). Asked what she would change if she could change one thing about her school, a 17-year-old female said "I would make it an open campus so that students could have more freedom." Similarly, at a large high school in a neighboring suburb, a female in the ninth grade who was asked the same question, responded:

  > The campus rules. They are so stupid. Like for the last 2 years all sophomores have to stay on campus for lunch . . . . During your free periods you used to be able to leave campus, now you have to go to the library or something . . . . I would change stupid stuff like that.

  These rules have an effect on students' perceptions of their schools. The student activities director of one of the large high schools in the study expounded on students who feel less positive about the school:

  > This is an institution. Those kids that are most creative and are most likely to thrive in a situation that does not have as many rules, regulations, policies, and provisions as this one does, they are the ones that look forward to getting out of here with the most passion. (To them), it is like a prison.

- *Safety issues*. At some of the schools we visited, students (and staff and visitors) must enter through metal detectors under the scrutiny of hired security forces.

In these schools in particular, one of the central concerns students share is personal safety. They expressed both anxiety and anger over the impact of gangs in their schools and a sense that the situation is continuing to deteriorate. A student at Uptown said:

> (The worst thing about the school) is the gangs. It's so many different gangs and they don't get along. It causes a lot of student conflict. I haven't had any trouble, because I don't say anything to them and they don't say anything to me. I would like to see more security guards here though, 'cause there are hallways where there are not security guards and in those hallways, they have fights. (Eleventh-grade male)

Few schools in Metro City, where we spent the most time observing, seem immune to the problem. Even in a suburban high school, a white female ninth-grader said that the one thing she would change about her school would be:

> The whole gang thing. It seems to be getting bigger. One kid recently got shot, and even though the shooting wasn't gang related, the reason that the gun was brought to school was gang related. I think that it's really sad and stupid.

Students at this school worried over the potential intrusion of metal detectors and what that would represent for their school and for them as individuals. They expressed concern that a sense of trust and civility would be lost in the process of attempting to make the school safer and were angry that this might become a necessity in a school that had previously appeared remote from such problems.

Students in West City were equally concerned about gangs and the potential of violence, with even middle school students expressing concern about the safety of their schools, because of the presence of gangs. High school students reported the recent curtailing of school events and changes in-school policies:

> At my school there were good bathrooms but they are all messed up now because of the gangs. And now they only have them open during lunch and break. They do not have them open at other times, because they are afraid they are going to mess them up, and they do—it is the truth. (Eleventh-grade male, West High School)

There were few schools we visited where students seemed to feel that personal safety was not a concern. Because the issues of safety, violence, and gangs are broader concerns that extend beyond the schools, these will be discussed in more detail in a later section.

- *Activities and school resources.* Given the importance that U.S. adolescents place on the range of opportunities afforded by their schools, it was not surprising to hear complaints about the need for more activities and course offerings than some schools currently provide. A female student at Uptown commented:

  > I would add more advanced, honors, and AP courses to challenge the students. I would also add more sports and activities. We are having tennis this year and I think that is great. I know some schools have horseback riding and fencing. I think those activities would help make students more well rounded, a bigger area of knowledge, more discipline, and it will give students more to do. (Twelfth-grade female, Uptown)

  A student at Metropolitan, asked to identify the main problem with his school, said: "Well, I would say this school is cheap. I would have a lunchroom. I would let students go on trips."

  Students as early as middle school were aware of the inequities of school funding and the relative inadequacy of their own situations. In West City, a student commented that "our district doesn't have much money compared with the districts on the other side of town, so in the middle school district they took all the sports away." Parallel stories were cited in Metro City schools as well.

- *Classes and teachers.* Students were most critical of classes that were boring, that were taught primarily in lecture style, and where the material presented was an oral recapitulation of their school texts. A 10th-grade male, whose parents are both professors, said that what he would change at his school is the "boring routine of classes. Not purely because they are boring, but because it is not productive. It is inefficient. And it is not a way to educate." Asked what the teachers do that is so boring, he replied:

  > If they lecture, they do not have a lot to lecture about. I sit in health class, a we go around in circles. There is so much that one could say about health. You can talk about biology and medicine, about social issues and moral issues—there is so much there, and the lectures are just her briefly regurgitating what is in the text, and the text is very lame, maybe third grade level. This is not an honors course. The honors courses here are outstanding, out of this world. Especially in the history division, and in other areas, too.

  In a group interview with high school students at Springdale, students talked about their attitudes toward their classes. One female said, "There are days that I am sleeping in my geology class because it is so boring. I am bored out of my mind, but then there are days that are really cool." A male friend in the group replied:

> I think it is more like the core subjects, like math and science, English, the straight edge classes. They are not really fun, but you have to kind of do it. And then there are the fun classes, like psychology, law, auto, art, and theater. In those classes you have a lot more fun, and you do a lot more things that you like to do.

- *Tracking.* The division of students into separate courses was a source of considerable discussion. Some expressed concern over students who are labeled and channeled into low-level courses. One student, an African-American senior at Springdale, said that she thought that some students were perceived as stupid and put in certain classes accordingly, passed from year to year, and given diplomas that meant nothing. Others, she noted, were really quite bright, but were labeled as behavior problems, stereotyped as stupid, and placed accordingly. "Someone needs to pay more attention to those kids."

An African-American 15-year-old male at Hamilton, the child of professional parents, said:

> I think that this is an excellent school academically, but they track here. Like kids who didn't do well in middle school, they just throw them in a low track and maybe expect them to drop out or something. You see more minorities here in the lower track. But sometimes I think that may be their fault. I think that it's time for, especially black people, to start taking charge of things. We are sitting around complaining that there are no opportunities, but there are some opportunities here and we're not taking advantage of them. If a parent would come in and say that I don't want my child in this lower track, then I'm sure they would change the child, but I don't see that happening often.

The most common concern raised about tracking, as noted in the comments above, was the conflation with race and socioecomonic class, and the effect this has on the schools as a whole. At East City High School a senior commented that she didn't see the system as equal. "Advanced is mostly upper class, mostly white. Academic is mostly lower class, with a lot of black people. There are even two class presidents, a black one and a white one."

At Springdale High School a student talked about "honors, regular, and basic" students and said:

> The racial issues are very intertwined. The fact is that in most of my classes there are not a lot of minority kids. Why, I cannot say. But it is certainly an issue. It is not meant to be segregated, but it sort of is.

As a white student, he was bothered by the fact that his primary contact with African-American students was in gym and health class, and that in a community that prided itself on racial integration, the school had become so segregated. Similarly, at Hamilton High, a white student in a group interview noted:

> The kids in the honors and AP courses are mostly white, and by the time of your senior year, you know most of the kids when you walk into the first day of class. The regular and general classes are mostly black.

An African-American honors student in the same group responded to this comment:

> What is really weird, if you take a low or regular kid and put them in an honors or regular class for a month, you will see work like every other honors student. And I wonder like why they are in lower classes if they can do honors work.

The mechanisms for selection into various courses and tracks varied from school to school and seemed relative to the population. At the high-achieving schools, honors and accelerated courses were reserved for those working well above grade level, but honors courses at Uptown enrolled students "who are working at grade level or above." Most schools used scores from state-mandated tests or teacher recommendations for placement. In nearly all schools, however, it was noted that parental preference could override more objective criteria, a system noted by teachers as more likely to benefit those with parents knowledgeable about how the system functions, typically white, middle, and upper-middle-class families.

Adolescent Concerns

During the interviews and discussions, students were asked to talk about the problems and concerns that face adolescents today. Responses differed widely according to socioeconomic status and age. Younger students and those from more affluent backgrounds were more likely to speak of immediate personal and interpersonal concerns, such as academic pressure and relationships. Older students describe concerns that focus on negative peer pressure, drug use, and teen pregnancy. Those in more impoverished neighborhoods spoke of a broader range of social concerns that have an impact on their day-to-day lives: gangs, fear for personal safety, family violence, drug use, and hunger. Few students at any level talked about concerns at the national or global level. Many talked about the future, but in some cases this was as narrow a concern as which college one might attend. In others it involved facing the possibility that they might not have a future.

Parents, too, mirrored the economic situations in their neighborhoods as they reflected on student concerns in their children's schools. Two mothers, both parents of middle school children, gave these contrasting portraits of the worries children in their communities shared:

> My daughter worries about getting A's . . . . And I think there is always the feeling, is my kid behind? Boys out here, if you want to play hockey, you really have to start skating when you are five or six. My boy, when I started him skating it was too early, he did not like it and did not want to go back. By the time he was interested again, he felt he was already so far behind he could not compete. So then he considered karate, and he said to me, I would really like to do karate but I think I am too old . . . . The parental perspective (in this community) is push, push, they've got to do it. If they are going to play an instrument or play hockey they have to start early in the first grade and keep going in order to be good enough to compete. (Mother, Vanderbilt Middle school)

Just a short distance away, in the inner city, another mother talked about the worries of children in her community:

> Kids who live in the area here, if you were to ask them, their daily worries are drugs . . . . and there's night—and gunfire . . . . A lot of them worry where are we going to get our next meal, what will we go home to find. Will mom be there, will mom not be there? (Mother, Metropolitan School)

Personal and Interpersonal Concerns

Academic pressure and the stress it places on individuals was mentioned by many students, but more often by those in the middle school years than by those in high school. A student at King Junior High School said that "Homework is the most stressful thing for me, but it's mostly about when I'll get it done on time and when I'll find time to do it." Another said that "I'm in the honors lab and our teachers give us a lot of work there and sometimes they give us the whole lab project at one time and it's hard to stay ahead. But somehow I do it." Some middle school students also worried openly about where they would attend high school, a concern expressed even more often by their parents. In Metro City, students can attend their neighborhood school or apply to specialized schools or academies. In the suburbs, private schools were more likely to be mentioned as an option. Within the city, some described the possibility of relocating in order to attend better high schools, or at least those perceived as safer.

Compared to middle school students, high school students were more likely to worry about their future:

> I guess it's just an undecided mentality. Like, you do not know what you are going to be doing. Just a worry about the future, whether you are going to have a stable job, just what is ahead for the future . . . . It is like you are coming to the end of an era. So it is kind of scary. (Eleventh-grade male, Springdale)

A Hamilton student spoke of the pressure to excel not only now, but also in the future:

> I had a teacher say, 'You are all the cream of the crop. You are going to be running the country in 10 years, and if you do not go to these colleges and do this, then you are all just failures.' This is a horrible mindset.

Peer acceptance is very important to early adolescents, especially during the transition to new schools. Two first-year high school students at Hamilton said that the primary concern for students their age was "to fit in and be accepted by their peers. Students worry about being liked, about having friends, about building relationships." As they get older, this concern may focus, for many, on relationships with the opposite sex. As a 15-year-old male noted, "A lot of kids get very caught up in the social things. 'She called me this or that', or 'my boyfriend dumped me' or whatever—that kind of stuff." Some students talked about these interests overshadowing academic goals. A Hispanic female at Uptown said:

> From what I've seen a lot of girls' grades go down when they have a boyfriend. You want to talk to him and be with him and if he is really good, you know, cute and faithful and can fight, then he is more important than grades.

Students also worry about being pressured by friends. As early as middle school, students said that the biggest problem was "hanging around the wrong people, and letting other people bring them down." A female student in her first year of high school at Uptown said that the primary problem student's deal with is "negative peer pressure. Your friends might say, 'Let's not go to biology, let's go to lunch.' " A Hispanic sophomore at the same school said she thought the main problem was "peer pressure to smoke weed or skip class. I don't do it but many do, because they are trying to be popular, because the ones who cut (class) are the most popular in school."

Adolescent Social Problems

The majority of problems students mentioned are those that could be more broadly defined as social problems faced by their communities and the country as a whole.

Safety issues, violence, and gangs. Some children mention that they welcome going to school, because it is the only place they feel safe. Others do not feel safe even at school, a perception confirmed by national statistics. In a recent national survey on violence and crime in schools, the most frequently cited problems were stealing, cited by 38 percent of students as a "major" problem, and pushing, shoving, or grabbing cited by 33 percent of students. Threats to students, threatening with knives or guns, and using knives or firing guns were cited as major problems by 23 percent, 20 percent, and 19 percent of students, respectively (USDE 1995).

Metal detectors and security guards are a standard presence in inner-city schools, along with omnipresent IDs worn on chains around students' necks, but students still know which hallways are most feared. During our observations we saw a fight erupt during the change of classes in a hall monitored by only one teacher, remote from the central office. Four large males had surrounded one female student and were banging her head into a locker, as they shouted obscenities. As a teacher commented: "Overall, I think it's a safety thing. The gangs, the weapons, the drugs, all of this has taken over to the point where this isn't a teaching environment." Even in one of the suburban schools, a shooting had recently taken place, shattering students' sense of security:

> We were in the cafeteria and a student had a gun in his backpack. Some way it got jostled and the gun discharged and hit another student in the back. The bullet is still in him because it was so close to his spine they did not want to remove it because it might paralyze him.

Just a short cab ride north in a wealthy white suburb, middle school students acknowledged their relatively secure position and the privilege of attending a school where personal safety can be assumed.

> We read books in this school that have to do with the inner city. On the news there is just so much which is really upsetting. I feel great to be here . . . . I know that in this school no problems are going to happen that are going to be tragic. (Eighth-grade female)

Violence on the street is a more threatening intrusion in young lives. In some schools, most students seem to know someone who was shot and many have witnessed it. Fears of being victimized by random violence are common. A question such as "Do you ever worry about the future, that you won't be able to achieve your goals?" was answered by an African-American female student at South Central:

> Yeah, you don't ever know what's going to happen. You may get shot, anything can happen. You can be an innocent bystander. I be scared

> sometimes . . . . Sometimes I think that I can make it though, if I just stay in the house, but I can be walking to the store for my mother and get shot.

Her friend echoed the concern:

> I know people who have been shot. My brother got shot. We had just walked into the building and a boy had a (gun) and dropped it and the next thing, my brother was shot. So you don't ever know what's going to happen . . . . You can get shot in the house. My brother's girlfriend who he got kids by, her sister got shot in the head, and the bullet come through the house, come through the wall and hit her.

Much of the violence is attributed to gangs, a predominately male phenomenon, and a source of fear for many of these students. None of the students we were assigned to interview, not surprisingly, professed to being gang members themselves, but many knew of others who were or were aware of the presence of gang members in their schools. One student had recently moved to the city because her brother had been in a gang where they lived before, and her parents hoped that moving him to a new environment would end his affiliation with gangs. It had not, according to the sister. A principal in one of the inner-city high schools talked about within-city relocations negotiated by principals when students (or their parents) were attempting to end gang membership. A teacher at South Central thought the primary cause of truancy at the school was "gang intimidation. The kids may miss school to miss the guy who is threatening him."

At the middle school level in West City, a 13-year-old Mexican female talked about the destruction gangs had brought to her school. "They rip out the pages of the books and mess up the desk and they mess up the school." Her brother noted that these kids were "wannabes," not yet old enough for gangs in this community where adult gangs also exist. "Parents might be in gangs too. You see a lot of adults in gangs—people in their 40's and 50's." A teacher at Metropolitan, a K-8 school, thought that children as young as fourth grade were aware of gangs and the violence that was "a reality of life in this particular area of the city. And that's unfortunate, because children are not allowed to be children, to have those careless or free moments of play and be able to grow up."

Drugs, alcohol, and tobacco use. Drug, tobacco, and alcohol use is pervasive and begins early, a fact that has been confirmed by national studies, but which is all the more powerful when seen in its effects on individual lives throughout this study. One eighth-grader estimated that "60 percent of the boys and girls around here my age smoke. You know, you just have to stay away from it. If you stay around it, they're just going to try to impress you into smoking." Students gave similar and sometimes higher estimates for the use of marijuana and other illegal drugs in the high schools.

National studies indicate that although drug use among American teenagers during the 1980's declined from the high rates observed in the late 1970's, drug use has been increasing in the 1990's. For the third year in a row, the percentage of high school seniors who reported using illicit drugs rose in 1995 (University of Michigan, News and Information Services 1995). In 1995, 39 percent of high school seniors reported using some kind of illicit drug once in the previous year, and 23.8 percent responded that they had used an illicit drug at least once in the previous month.

There has been only a modest increase, however, in the rate of adolescent drinking (University of Michigan, News and Information Services 1995). More than one quarter of high school seniors surveyed, 29.8 percent, responded that they had had 5 or more drinks in a row during the 2 weeks preceding the survey. This was up from 28.2 percent and 27.5 percent in 1994 and 1993, respectively.

The use of cigarettes among American teenagers has increased slightly in recent years (University of Michigan, News and Information Services 1995). In 1993, 19 percent of high school seniors reported using cigarettes daily. This rose to 19.4 percent in 1994 and 21.4 percent in 1995.

A student at a suburban high school commented on the prevalence of drug use among various groups. He thought the primary pressure the wealthy students faced was:

> Drugs and alcohol. It is pretty pitiful at our school. It is pretty bad. Not only alcohol and dope, but also acid . . . . You can be rich and this does not mean that you do not have problems. They are under pressure to perform. Their problems go deeper and these problems are covered by money. And the heavy rocker group, they are into the drugs too, but for different reasons than the rich kids. They really like to get into it. They are into it for the fun and experience of it, rather than for escaping like the rich kids. And then there are the black kids who are really into weed . . . . Personally, I think every kid has his drug . . . . Some kids may use it to cover up their problems, others may use it just to take risks and get wild.

The school librarian at Metropolitan talked about drug involvement that began as early as fifth grade, as students became "involved in the drug trade either as lookouts, messengers, or delivery people." She reported having observed from the window of the school regular drug activity in front of a nearby apartment building where many of the newly arrived immigrant students lived with their families.

Drug use within students' families was another concern. Asked to identify the biggest problem teenager's face, a South Central student said,

> Their mother or father being on drugs. And child abuse. And how they gonna eat tonight. And whether or not their father or mother sold something out of their house for drugs. Drugs make people do that.

Teenage pregnancy. Especially among minority students in the inner city, many said that the biggest problem facing girls is pregnancy, with all the ensuing problems that the birth of a child would represent: social changes, responsibilities of parenting, financial burdens, and whether to continue schooling. The same situation, however, may bring heightened male status. A Hispanic student at Uptown said that "A lot of girls get pregnant and when they do they get less respect from guys. They think that they are whorish or easy. The guys get respect though, because they got a girl pregnant."

Although teen birth rates have declined in recent years, they remain high. In 1994, the birth rate among 15-17-year-olds was 37.6 per 1,000, down 1 percent from the previous year (NCHS 1994). Despite this decline, the 1994 rate was still higher than any year between 1974 and 1989. In 1990, 10 percent of women between the ages of 15-19 became pregnant and either gave birth or had an abortion (MMWR 1995).

At South Central students spoke of sexual activity beginning young. Female students reported that girls "start having sex around 11 and 12, in sixth and seventh grade." A teacher at Metropolitan reported:

> Within the last couple years we've had girls graduating (from the eighth grade) either a bit pregnant or who have had a baby . . . . I walked into a classroom and walk up to a new girl and I notice she has a band on her arm. It's a hospital band, an ID, and I say . . . . were you sick? And she said no, I just had a baby. Now this is a seventh-grader having a baby . . . . How is a 12- or a 13-year-old to raise a child? We're seeing too much of that . . . . Yes, pregnancy is definitely an issue in the area.

Poverty. Many urban schools feel the strain of dealing with children of poverty. The former principal of the high school in West City talked of being a "full-service institution" where 40 percent of the students were in families receiving some form of federal financial assistance provided to low-income families, and many others were financially eligible but were "undocumented." The school provides health services and inoculations, mental health services, social worker services, counseling in cultural adjustment, and alcohol and substance abuse counseling. The former principal also pointed out that the school is

> . . . . peopled by teachers who would go the extra mile, so in informal fashion you had teachers bringing in food, bringing clothes, taking kids home, I

> mean there were stories and stories. I myself had a kid living with us for a year and a half because he was sleeping in a car.

National statistics suggest nearly one in six high school students are living in poverty. For example, 16.3 percent of 12- to 17-year-olds lived in poverty in 1990 (USDE 1995). In another indicator of poverty among middle and high school students, 9 percent of urban, 5 percent of suburban, and 8 percent of rural public secondary school students were eligible for free or reduced priced lunches (USDE 1993b). These numbers are likely an underrepresentation of the total number of eligible students, because many eligible students fail to identify themselves to avoid the stigma attached.

Family problems. With the rise in divorce rates, at any one time a school may have a significant number of students whose family life is in flux. Even where the situation is amicable between parents, there may be an emotional toll on the child. As parents remarry, many students are adjusting to new families and to new routines. In some cases, the problems at home are much more severe, and it may be difficult for students to focus on schoolwork. The problems of other students can also be preoccupying. During observation of a Monday morning honors biology class at Uptown, what appeared to be group work proved to be a heated discussion of the news that a friend had run away over the weekend and reports about the difficulty of his family situation.

In some cases, the situation is much more extreme. Teachers spoke of their horror in dealing with children who had been beaten, raped, or abused in other ways. A student at the vocational school, when asked about adolescent problems, said:

> It's the abuse too, physical and sexual, fathers having sex with their kids, that's what I think it is mostly too. I know kids like that. People dealing with a lot, plus dealing with school . . . . Females have to move sometime because their mother moved her boyfriend in the house with them, and he want all the attention or is trying to abuse them or sexually harass them, and stuff like that.

A teacher at Springdale who had been teaching for 21 years looked back over the changes he had seen in students.

> The kids come to school with far more problems than they used to. Everything ranging from a very poor home life where they are not being nurtured to sometimes very extreme cases of drug abuse, physical abuse, and psychological problems. It used to be that deans would concern themselves with kids being tardy and just ditching class. Now . . . . kids have very serious problems. Kids who may be suicidal, they are very unhappy. They are very angry

> because of a rotten home life. And with all this I am supposed to be teaching them all the same things I was teaching kids 20 years ago.

The growing number of adolescent social problems, including violence, drug use, teenage pregnancy, and a range of family problems have all had an influence on schools. Students may be preoccupied with these issues and unable to give full attention to school. Teachers and administrators have found that schools are expected to attend to complex needs, which they may feel ill equipped to address, and they worry about what may be sacrificed in order for schools to take on a broader mission.

Other Influences on Adolescents

Peers

One of the defining characteristics of adolescence in the United States is the importance of peers. Individuals come to define their own identity with the broader peer group. Experimentation with identity may occur and the influence of peers rises, generally peaking at about ninth grade. We were interested in how the adolescents we studied were affected by their peers, and in particular, how their perceptions of schooling were influenced by peers.

Friendships. Adolescent friendships were most often described by those we interviewed as originating at school, though some talked about friends from their neighborhood, sports teams, or churches. Friendships in adolescence are fluid and age-stratified. In early adolescence most students identified friends in the same grade or, at times, a year apart. Classes are generally age-segregated, and lunchtime, often the only informal social time in the school day, is typically scheduled by grade. One seventh-grader noted:

> I don't consider myself really good friends with any eighth-graders, but I talk to them sometimes, maybe during (activities) or something. I mean, I'm not enemies with them.

This begins to change in high school as classes are more often composed according to ability rather than age, and as school activities and sports create opportunities for friendships across grades. For minority racial and ethnic groups, friendships may be less stratified by school and age and be forged within neighborhoods. Within schools it is also common to see friendships forming along racial and ethnic lines, though there are certainly many exceptions. High school lunchrooms we observed were visibly segregated by race, and both administrators and students indicated this was a source of concern.

Adolescent peer groups. Adolescents often affiliate with those with similar values, and these groups may be readily identifiable to others by such features as their dress, hair, speech, and musical choices. Among those we interviewed, identifiable peer groups do exist, but appear fluid, malleable, and overlapping. Students do not seem preoccupied with these group identities, with the exception of those who are in gangs (the most extreme versions of adolescent groups), but they could easily recite some of the various groupings within their schools.

At the middle school level, students described a few definable groups, including those based on race, athletic interests, musical tastes, and general behavior and values. One student noted that, "I think that mostly the groups are based on how someone acts, but probably people would say it is based on the type of music they would listen to."

At a nearly all-white middle school in a wealthy suburb, the eighth-grade student council president offered her view of group distinctions:

> There are people who are really into school and grades who hang out together. There are two other groups. They do not hang out together, but they do the same things. The popular group and the average group. There is definitely one group that is higher than all the rest in status. (We) are not more pretty, but just cooler . . . . We are not mean to anybody else, although we do put the others down sometimes in fun.

Among the large comprehensive high schools we visited, adolescent groups seem a way to find a personal niche and a sense of community. A 10th-grader noted that:

> Our school is very, very large, it is public, and it draws different people from very different social classes. We have people who live in $500,000 houses and people who are below the poverty line, all at this school. I think all that together creates a very interesting and dynamic group. You have cliques. You see walking down the hall totally different styles of clothing and behavior.

In these environments, students talked about groups that were further divided into subgroups, and about "fuzzy boundaries" between groups. One high school student at Springdale said that groups were defined by

> Activities, lifestyle kind of. There's like alternative, people with long hair or who shave their heads, and then there are preppy people, usually athletes, not necessarily real smart, but like pretty strong academically, and then there are

> real smart people. They kind of all get along pretty well. Your better friends are usually people that are like you, which seems logical, but you also have friends with all types of people.

Drug use and musical interests may further divide students. Another high school student said:

> You can look at most of the people at this school and say, they smoke pot and they do not. You can see this by the way they talk, the way they dress, the way they act, the music they listen to. Grateful Dead is becoming really big. Fish is really big among certain crowds . . . . The freshman crop this year is a bunch of little grunge puppies. They dress like grunge look, are into the crazy hair.

This same student, however, interviewed with a close-knit group of friends who had formed around school theater productions, was bothered by the stereotypes others formed of his own group and the simplistic assumptions that were made based on their dress and demeanor. This group disliked being stereotyped as "slackers, people who do not do anything" and pointed out that one of their members was in all AP classes, even though "he may look like a long-haired freak . . . . This doesn't mean anything about our grades." These contradictions—the ability to quickly categorize others, but the need to see oneself and ones' own group as more complex and multifaceted—seemed to characterize much of adolescent thinking about groups and cliques.

Many students professed not to be a part of any group, and there seemed to be some pride in being independent enough to resist easy identification as a member of the more dichotomous groupings. As one white male sophomore stated: "Prep—you are very nicely dressed, and grunge, which is trying not to care and trying to be odd, and there is always the people who are not trying too much to identify with a group. I hope I fall into that category."

Peer influence on perceptions of schooling. We were interested in knowing how peers influence perceptions of academic achievement and the attainment of academic potential. We talked with students whose friends support their academic goals, students whose friends do not but who are able to retain their own ideals, and students who feel as though they must choose between the values of their friends and those of the school.

Most students could identify a particular group of students who were highly engaged in academics, but there were frequent acknowledgments that such students could be found in nearly any of the various groups. At one of the large comprehensive high schools with a diverse student body, where 80 percent of the students go on to college, the school librarian talked about the remarkable range of groups she observed—punk rockers, graffiti writers, musicians, athletes, even computer nerds who intermingled with rockers and spent their times on games such as dungeons and dragons. Asked about the "really studious kids," she claimed that "these kids are not part of any particular other group. They are universal. In every group, you can see maybe 10 studious kids."

Students, however, acknowledged that some groups were more supportive of academics than others and that in some social circles an academic focus would bring disdain. They spoke most often of the influence of immediate close friends. Some talked about their awareness of being with friends who shared academic values. A 15-year-old male student at Hamilton said:

> My close friends are a lot like me. We want to do something with our lives. We see something beyond here. We are all crazy—funny, you know. We don't hold each other back. If one says, 'I have work to do,' we will be like 'Okay, that's cool.'

Others spoke of friends who did not share their values, and this was most often heard in the early years of high school, when they began to progress academically and friends from earlier years did not. A ninth-grade female at Hamilton said:

> My friends are smart, but they don't work as hard as I do. Their expectations of themselves are not as high as mine, and sometimes when I tell them that I have to go and do homework, they don't understand. They'll ask why, and try to draw me away from it. I don't know why I work harder than they do. I think it was the way I was raised. There is something inside that really makes me want to do good and if I don't do good, I feel let down inside—like I let myself down.

Another ninth-grader spoke of the difficulty of letting go of a friend from middle school years:

> I had a best friend from last year and I have seen her slowly slip away. I tried to talk to her. I didn't want to sound like her mother. But once when she did something really stupid, I took her aside and told her 'you are getting dumber and dumber.' She started crying . . . . She was trying to fit in, she was louder than usual, and she lied a lot, because she knew that was what people wanted to hear.

Some high-achieving students we interviewed described dual worlds of classes and friendships. Those in honors and accelerated courses frequently made comments such as: "I don't see a lot of (my friends) during the day. I take advanced classes and so I don't see them. I see them before school, after school—and during lunch is the time that we all come together and meet." A college-bound Hispanic student in West City described a similar life:

> Most of my friends that I hang around with, they are not really into school . . . . Sometimes they do not even go (to school) until 10:00 a.m. School is just not so important to them. These are the people I hang out with. But the people I have in my classes are pretty good.

Middle school seemed to be the point where students first feel pressed to make choices about friends and academic values. In a group interview with students at King, one of the female students said:

> At school some kids are under pressure to hang out with their friends instead of like getting a really good education, because they think if you don't hang out with them then you're not their friend.

Teachers of students this age expressed worry over these perceptions. A female science teacher at Metropolitan said:

> Some kids don't want to show that they're bright, because their peers will look down on them. However it came to that, I have no idea. But it's really a shame.

We also interviewed students who were proud of their academic accomplishments, yet uncertain of the labels they might be accorded by peers. One accelerated high school student, defining the groups in his school, said that "There are academic clubs, like the math and science teams, who are—I don't want to call them nerds, because I am kind of one of them. Scholars, I will call them." The disparaging term "nerd" was seldom generated by students, and generally used only in disclaiming self-reference.

These findings are limited by the fact that students with genuine disdain for the academic environment were less likely to be in our sample than those who are more engaged in schooling. Furthermore, students may have been unlikely to express their lack of engagement to the interviewers, knowing the focus of the study.

Family

Parents play an influential role in their adolescents' lives in a variety of ways. They send messages about the importance of school, reinforce these messages in the home, and either involve themselves directly in their children's education or do not. Many students spoke about their parents' expectations about schooling, both in terms of the role it should play in their lives, as well as expectations about academic performance. As expectations become internalized, students continue to set similar standards for themselves. Whereas in the earlier years of adolescence, students talk about clearly expressed parental expectations, by later adolescence students themselves give voice to these expectations.

A ninth-grade female raised in a single-parent household talked about the importance of living up to the high standards her mother had set:

> It hasn't been too hard (to do well in school), and I haven't wanted to let my mom down. If you don't live up to people's expectation, you feel bad, and if you do bad, you know the reason for it, and you say okay, I got to do better next time. When you get to the level that you want to be, you feel a lot better.

A 14-year-old male in East City said that his parents "believe very strongly in education. They want me to do well. Basically A or B. They expect that of me and I expect that of myself. I would not appreciate a C or lower." Many of the students interviewed, when they specified performance standards, described academic goals that were more moderate. A Springdale student, for example, said, "My mom is not adamant about perfect grades, but she is adamant about grades that will get me by."

A male student at Hamilton said that he was motivated by his desire to work with kids in the future and that required him to do well in school. He also described the more extrinsic motivation provided by his parents, a common feature in many families. Asked what would happen if he started making bad grades in school, he said, "Well, first the sports would go, then other privileges, until I figured out what I wanted to do. There definitely would be consequences." Other students described responses that were less punitive. Another ninth-grade student at Hamilton, a female, said in response to the same question:

> My parents would ask me what is wrong, and they would work with me a lot more. Right now they allow me to be pretty independent in my studies, but if my grades went down they would try to help me understand the material. My parents are very supportive.

In most families, parents relax their supervision over time, allowing for growing independence and internalization of academic standards. A high school junior at Springdale described this transition in his home:

> When I was younger they used to say, do your homework and stuff. Now I am on my own. If I do not do it, then I do not do it; it is a personal decision. I think that if it became a problem, and I was not doing it often enough, then they would get firm about it, but as long as it gets done, they kind of let it go.

Future expectations. In many families, the motivation for academic success in adolescence is derived from expectations about the future value of education. For those whose parents attended college, this is the unquestioned and unchallenged path for their children. A female senior in East City, accepted to nursing school for the following fall, said that both her parents had gone to college and that "Going to college is an absolute necessity. There was never a choice. It's expected."

The expectation that students will excel academically in order to attend college is also strong in those households where parents did not have this opportunity for themselves and who have dedicated themselves to providing it for their children. Another East City high school senior, neither of whose parents had attended college and who had just been accepted to a university where she will major in education, commented, "Education is very important. You don't get bad grades. In my family, it's not really an option to slack off." Education is viewed by most adults as the path to upward mobility, and this is a particularly powerful message in many immigrant households:

> My mom wants me to have the chance at the things she did not have a chance at. Like now she is going back to college, because she didn't get that chance. She came here from Jamaica when she was 20 and she had to start work immediately. So she got her GED, and now she's going to college. She doesn't want me to go through what she went through and she tells me that 'You better get yours now.' (Ninth-grade male, Hamilton)

Students may also be influenced, both negatively and positively, by older siblings and the values they hold about education. One ninth-grade student conveyed the importance this has for her:

> Don't tell my stepsister, but I look up to her a lot. She is everything I would want to be. She does everything, she can do hair, but her grade point is like 3.9 or 4.0, and it is like colleges, colleges, colleges. She used to run track, but now she knows that though she is a runner, she isn't the best. She is really into math now, she is taking AP biology and everything like that. So sometimes I stay up and watch her. I try to take everything in, because she'll be leaving to go to college next year.

Parents who did not finish high school themselves may see the attainment of a high school diploma as a primary goal for their children. For example, one mother of an eighth-grader spoke of her own regrets about dropping out when she became pregnant as a teenager and how strongly she felt about her own daughter completing high school. For some parents, this goal has become an end in itself, and little discussion followed about what these students might be able to do with the diploma after graduation.

Multiple messages from parents. Parents in the United States are likely to stress the value of education to their children, but they also communicate other cultural values, particularly those of independence and individuality. One East City high school student offered the information that both her parents had changed majors a couple of times when they were in college and would probably be flexible if she changed her mind about a career. Students also spoke of acceptance of their own choices; for example, a Springdale student said that his parents "like to see me succeed, but if I do not, then it is OK; they are supportive." Parents hope that children will express themselves as individuals and find roles that complement their personal interests and talents. Adults in the United States may also harbor some of the same sentiments they fear exist among adolescents: that the student too focused on academics may be too narrow and less socially acceptable. A parent who described her two daughters' academic accomplishments was quick to point out that they have "always had other pursuits also" such as athletic activities. Perhaps attempting to draw a well-rounded portrait of them, she explained that "they're not in front of the TV all the time, but they're not at their books all the time either."

Parental involvement in school. Parental involvement in schooling is at its strongest in elementary school and declines abruptly in adolescence, with fewer roles for volunteers in the school and less informal communication between parents and teachers. As one Springdale parent noted:

> I would say that once the kids get to the junior high level that parents in this community feel more comfortable leaving the child in the hands of the school professionals and kind of backing off. The parental role is not as visible, especially at the high school level.

Most schools do have parent-teacher organizations, and some middle school suburban students, in particular, spoke with pride of the role their parents play. As one explained:

> My mom is very active. She'll be up there in a second if I need her for anything. She joins everything that deals with the school and tries to enroll me in everything. Like she gets in the PTO and stuff so she can figure out what's going on with the school and be a part of the school and a part of my life at the school.

Others spoke of similar involvement in organizations as well as parental assistance with field trips. Teachers noted that this has diminished over the years as more mothers entered the work force and that parents seemed to be working longer hours to "keep up or just to make ends meet." In inner-city areas, some parents spoke of serving as volunteer security guards within the schools. At Metropolitan School, where the annual turnover in students is 80 percent, school officials had eliminated the PTO and canceled field trips because of lack of parental involvement. Parents may also take an interest in the political aspects of schools, as noted by a 10th-grader at Springdale who said that his parents "do not know the teachers too well, but they are still very involved with the school, in political organizations. They go to board meetings every once in a while when there is a hot topic."

For most parents, direct contact with schools is often initiated by the school, either in the form of an annual school meeting or a note home when a child is in trouble. Asked what communication was like between his parents and teachers, a sophomore at Springdale replied:

> They have one meeting per year and that is it. But communication lines are open. There are written progress reports daily or weekly. Teachers have planning periods where you can call them and the teacher has a phone in each room. Communication lines are very, very open. And they are used occasionally, and I think that some students' parents have more communication with the teachers. My parents hardly ever talk to the teachers.

Most schools schedule an annual open house where parents can meet their children's teachers, and attendance at these events varies by neighborhood. Administrators at some schools are more sensitive than others to the needs of working parents and may schedule optional times for those whose schedules may conflict. Parental handbooks and newsletters are other means of reaching families, and these varied widely in their level of information, availability, and accessibility. Nearly all methods of communication with parents presume fluency in the English language, an unrealistic assumption in most major urban areas. A Mexican student in West City said that "My parents used to go to the meetings, but the meetings are all held in English, so it is kind of hard for them." Parents complained about this in the two communities studied where the immigrant population is high, and they praised those schools that had attempted to address the problem.

Parents appreciated schools where they received frequent information and were quickly alerted if problems arose. One middle school mother in East City commented that the teachers "watch the children very closely and, if they see a child not working up to their potential, they are quick to notify the parents. There is a really good line of communication between teachers and parents here at the school."

Teacher perceptions of parental involvement. Teachers expressed concern that parental expectations are often not translated into specific behavioral standards. A high school English teacher commented:

> I think that most parents have high expectations for their children, but don't know what to do to support the kids in reaching those expectations. Sure you

> can say "I want you to graduate from high school." But you have to give the students the materials and support needed to graduate from high school. You have to talk to teachers, make sure that they do their homework, check on their grades, follow up on teacher reports, and see what is going on in the students' lives. You just can't expect every kid to know what it takes. Sometimes I think parents don't know what it takes to have their children do well in school.

A librarian at Metropolitan, however, took another position on the question of parental involvement:

> There are parents who do not know how the education system works. However, I'm not sure that it's necessary for them to know how the education system works. We have seen waves of immigrants coming through our country and many of those parents were illiterate, many of those parents did not know how the education systems worked. However, they said to their children, you are going to learn in school, and I had better not hear from your teacher that you're not doing your homework, and let me see your homework. Even though they may not have been able to correct the homework, they demanded that from the child.

This woman, an immigrant of Russian background who had been schooled in Morocco, recalled her own childhood when her father would review her homework in a language he could not speak, enforcing homework time, supervising assignments, insisting that work be done before she could play. She acknowledged similar patterns on the part of some immigrant families in her school, but worried about others where "perhaps survival on the streets is more important than academic excellence. Perhaps as children they were not instilled with the values of having a good education, and therefore they could not pass that on to their children."

Teachers talked about "the breakdown of the family," the large number of children in single-family households and the two-parent households with both parents working. Middle school teachers in particular worried about the emotional toll this took on their students and the impact on academic work. Some teachers seemed overburdened by the demands that changes in family structure may have placed on them in their roles as teachers. Others, such as a business teacher at South Central, seemed to recognize the need to address this change in family structure as an underlying symptom of academic underachievement and to view this as part of the her job as an educator:

> A lot of these reasons stem from the students feeling unwanted, not enough time from the family, feeling like they are just aliens floating in space or something. Many of these students don't feel a part of the family. They want to

> know that they are a part of something and somebody . . . . Once the students know that you care about them, they really respond to that.

Teachers also expressed concern about the two-parent households in which children were likely to have large amounts of solitary, unsupervised time.

> Children either go home and there is nobody there, latch-key kids, or we have children going to day care. They sit down in front of a television, they put on the VCR, a CD, or the computer, and they play games and are entertained, but they don't learn anything from the entertainment. It's not like Sesame Street or Mr. Rogers; it's mindless taking up of time." (Math teacher, East City)

In more upper-middle-class schools, teachers expressed some concern about the parents they perceived as placing a higher value on work than on children. In the lower- and middle-class schools, there was more sympathy, and perhaps identification, with the plight of the families in which both parents worked, perhaps at more than one job. "A lot of parents have to work two jobs to pay the bills, put food on the table. When can they nurture? They're so exhausted."

Not all-parental involvement in schooling is welcomed by teachers. At the more elite schools, parent involvement was as likely to be mentioned as a problem as it was an asset. Teachers described parents as overinvested in student achievement. An East City middle school math teacher commented, "I mean, we've got some very pressure-packed parents here. They will fight you tooth and nail for a 98 when you gave the child a 97." At the most elite of the middle schools visited, parental over-involvement was mentioned as the least satisfying aspect of the job. Teachers also criticized parents who overrode teacher judgments regarding course placement and who insisted that their children be placed in higher-level courses. An East City math teacher said that "I sound sarcastic, but the kids can be accelerated as fast as the parents want them accelerated. The parent wants the child in calculus in the ninth grade, the state says 'sign him into calculus.'"

In other schools, teachers and administrators yearned for more contact with parents. At Metropolitan the administration had even attempted raffles and stipends to draw parents to meetings and lamented the complete absence of parental involvement in some homes. "I mean, we have children whose parents don't pick the report card up from one year to the next." This school had also initiated parent-teacher contracts for students placed in an accelerated program in order to ensure more parental involvement, requiring, for example, that parents monitor homework on a nightly basis. Administrators also worried about the varying involvement of parents based on class and academic background. The associate principal at Springdale noted:

> The socially and economically disadvantaged family depends heavily on the system to educate their child. They put their trust, they put their hope, in the school. Not many of them know how to access the system, to come here and be all they can be to help and support their child. And they don't have the money to have a computer, encyclopedias, to help enhance what's going on here at the school. But they do put their trust in the school, whereas your upper echelon, they tend to—I'm not saying they don't trust—but they tend to challenge the system more, to make sure that they get the max out of this school.

Parental involvement in the academic process was seen by all as a critical ingredient in school success and achievement, but schools vary in their ability to nurture and support it. Teachers and administrators at some schools have gained a greater understanding of the reasons for different levels of involvement and attempted to create strategies for parental engagement. For example, in one of the schools in West City where a quarter of the students were enrolled in ESL courses, the former principal had initiated a monthly open house where parents could visit the classrooms and meet with teachers. He noted the importance in this situation that "When you speak to the parents, you have to have people who can speak (their language)."

Additional Influences

Parents and teachers worry about the influence of the media on adolescents, particularly in regard to overexposure to violence, sexual activity, and material consumption. Students seldom expressed such concern about their own vulnerability to this influence. One teacher offered an explanation for some students' disruptive behavior:

> A lot of violence in America, too much violence . . . . From their infancy, parents are setting them in front of the TV set, as a babysitter. And the cartoons are violent . . . . They don't have to go to a show, or an X-rated movie, all they have to do is turn on a TV set. They've seen everything, and what the eyes consume, ok—eventually you act it out.

In the minds of some parents and teachers, the lure of money and the perceived need to acquire material goods seem to loom as a large threat to academic engagement. Not only do they worry that students may be making poor choices that put immediate material gratification ahead of education, but they question parents' roles in this process. One teacher told of a mother "washing clothes in a bucket, she doesn't have money to go to the laundromat, but yet in the same breath, she said to me, 'yeah she will get those $110 dollar shoes.'" In some of the schools we visited, rules had been instituted prohibiting gold jewelry and leather jackets for multiple reasons, and some had developed dress codes to prevent further social comparison and the threat of violence. A mother of an eighth-grader at Metropolitan was asked why some students might not believe school is important. She responded:

> People—kids—can see drug dealers and they can see the gang and they are driving around in a Cadillac and people that work for a living driving around a little junky car . . . . Kids' don't quite understand yet . . . . You've got kids that have either their parents on welfare or food stamps or whatever, they gotta have clothes, have this, and their parents aren't working. So what's the connection between school and a job?

The immediate pressure to have money now, the lack of positive role models in the immediate environment, and the lure of material goods may make it difficult for some to stay focused on school or to believe that schoolwork is worthwhile.

The Transition to Adulthood

How do students view the transition to adulthood that lies ahead, and how do they think their current schooling is related to that transition? Students generally described a limited range of desired careers, and the rationale for their choices was often expressed in terms of personal interest or perceived aptitude, rather than what was feasible for them. Many lack awareness of the steps needed to achieve their goals.

Students most often spoke of becoming doctors and lawyers; other prominent choices included professional athletes, engineers, and actors. For some, it is possible to defer career choices until college. High school students from more comfortable neighborhoods, those who have always assumed they would attend college convey a sense that career plans will be formulated in college after a period of exploration. An African-American senior from a professional family talked about her proposed college major of psychology:

> I don't know if that's what I want to do for a career, because that's light years away. With 4 years in college I might find something I really like other than that, so I'm leaving it kind of open. Take it a couple of years at a time.

A male junior at Springdale, all of whose older siblings had attended prestigious colleges, said:

> It is like a steppingstone, you go from high school to college, it is kind of like a testing period. You can learn and live on your own. And from there you can decide what you are going to do with your future. High school kind of

> gives you a little of everything, but it is harder to decide specifically what you want to do. I think that is easier in college, because it is more focused.

There are neighborhoods where middle school students talk openly about their college plans. An eighth-grader at Vanderbilt said, "everybody pretty much has their eye set on a college already, even though we are only in the eighth grade."

Others who wanted to attend college were aware of the financial implications and worried over whether it was an attainable goal. An immigrant from the Middle East said, "Sometimes I think that I won't have enough money. I've seen some people take a job for the money and never go to college. That's why I'm working now." Yet even those for whom it does not appear feasible, either academically or financially, college is still described as a future goal. Students in our interviews did not talk about going straight to work after high school, unless it was to make money to further their education. Even those graduating from vocational training programs had their sights set on attending local technical schools, where they hoped to learn skills that might make them employable. It is not easy for many to know how to fund such schooling, however, or to obtain an accurate picture of just what avenues might be open to them.

Connecting Current Education and Future Plans

Many students have absorbed the message that it is important to attend college and to plan for a profession, but they have little sense of how to make that happen—what courses they need to take and what caliber of academic record is necessary. Alternative scenarios for future employment and success that are culturally acceptable seem nonexistent.

Asked about her future plans, a 10th-grade student said that she was thinking of going to college. Her comments illustrated the gulf between aspirations and achievement that typified many such conversations:

> I want to be a doctor, a pediatrician. I always told my mom I wanted to be a doctor or a beautician, because I like nails and hair. My mom tells me to be a doctor, because they make more money and help people, but she tells me it's up to me. It will take a lot of hard work to be a doctor. I know that you have to go to college a long time—I don't know how long. Right now I'm not doing that good in biology. I was talking with my friends all the time and not doing my work . . . . We get our report cards tomorrow and she already told me that I got an F. I asked her to give me a D so my mom won't kill me . . . . I am going to try to do better next grading period. I could bring it up high, because biology is easy. I would just have to study for the tests. The homework and class work is easy.

A female student at South Central, the vocational school described by its principal as a "school of last resort," said that she wanted to be a lawyer. Asked what that might take, she replied:

> I know I got to finish high school. And then I'm going to a junior college, and then I go to a 4-year college to take my main courses that I need to be a lawyer.

A graduating senior at the same school, interviewed in the spring, said that he thought he would "set up my own business or be a doctor or lawyer or something like that . . . . Something that is going to make me money, like a laundromat, something like that, you know." Asked if he had taken any business courses, he said, "No, I didn't even know they had one, but when I go to college, I can take business courses there." The vague nature of preparatory career steps was exemplified by a middle school student with aspirations of becoming a lawyer. Asked what this might require in high school, she replied "Decent grades, no D's or F's." As mentioned earlier, many in the inner city aspire to the role of professional athlete and most seem relatively unaware of their very low odds in succeeding at this dream or remain undaunted by them. One student said that in basketball "only 1 out of every 179 makes it," so he thought he should have an education to "fall back on."

We also interviewed also included students from humble circumstances who dreamed big and were on a realistic path to success. A Mexican junior in West City, whose mother was a janitor and whose father worked on an assembly line, was enrolled in two college courses already; was applying to Stanford and MIT, and was planning a career in computer or electrical engineering. The recent Russian immigrant who had excelled at Uptown in both academic and extracurricular activities had been accepted at several colleges and was planning a major in biology and premed and a career as a surgeon. A Vietnamese American student enrolled in honors courses, whose mother worked in a factory and whose father was a mechanic, described her plans for pediatric medicine or dentistry with clear confidence that emanated, in part, from an outstanding academic record.

The Schools' Role in the Transition

School administrators and counselors appeared to see their roles in this process as providing information about postsecondary training, from technical schools to universities, and to do what they could to assist students in availing themselves of these opportunities. The large comprehensive high schools that funnel a high percentage of students to college offer printed material on college preparation, evening information sessions for parents, and individual assistance, by appointment, to their students. Students at the other high schools—and their parents—seemed far less knowledgeable about what they needed to do to achieve this goal.

Those parents who had attended college themselves were in a position to provide some guidance to their children, but those who hadn't seemed to receive little support and information and were unable to answer our questions about the process. This was particularly true for those with less fluency in English. Nor are the financial aspects of college typically a part of the planning in any of the schools. An administrator at Hamilton High School commented:

> Our premise here is that people will (go to college) . . . . The good kids here are sort of on automatic pilot. You have got to go to college. And you know, kids who are least served by this policy are the kids who do not have the money and have never confronted the issue of how they are going to pay for college after the first or second payment uses up family savings.

He also noted that many of the students who had worked hard at achieving during high school would benefit from taking a year off before college, but that "Parents would be apoplectic if their kid came home and said to them that 'my counselor suggested to me not to go to college.' They want to hear that their kid is on track, on task, and is going to be a success."

Schools tend to measure their success by the number of students they route toward postsecondary training, and little is done to prepare students directly for work. We did hear of internship programs and vocational courses and we observed one program at Uptown High School that aimed to prepare students directly for employment by linking vocational training to the needs of several industrial employers in the immediate area; however, even graduates of this program aspired to attend the local technical school first. Asked about the 20 percent of Hamilton students who do not continue their education, the "college and career counselor" said that "our postsecondary planning includes the vocational, technical, and business and proprietary type schools as well as 2- and 4-year colleges." She noted that:

> We recognize that college is not for everyone and is not necessarily the choice at the end, but, if you prepare towards college prep, the chances for you to have all your options open in 4 years are better than if you don't plan for that.

Accordingly, she commented that the aspirations of students in the school showed little variation. However, she went on to say:

> But I do think we have some differences in how we become what we want to be. I think a lot of times students who haven't been exposed to different courses won't know how to get to a certain career goal. Whereas a kid from a higher socioeconomic background might be more familiar with that, because they have more people with different careers and academic experiences in their family.

An administrator at the same school reported that except for a few internship programs:

> There is nothing special for the kids that prepares them for the work world . . . . These are the kids that get hit in the face in the end . . . . I think that the American lack of integration between secondary education and the work world is tied to the American ethos of equal opportunity. You say that we will treat everybody the same and it is up to them to make what they will make of it. This is our philosophy, which politically underlies the system. In reality, everybody knows it does not work that way, that the most important predictors of kids' success is parental income.

The schools we observed were all heavily tracked, but it is clear that students are expected to see college as the ideal, regardless of their program of courses.

Summary

Adolescents in the United States are expected to succeed in the simultaneous development of competency in several domains. The typical student at schools in middle to upper-class neighborhoods is expected to do well in school, hold a part-time job to make spending money or to save for college, participate in sports, take an active role in-school organizations, and demonstrate interest in other activities (e.g., play a musical instrument). Academic achievement is valued within this context of becoming the "well-rounded" student, one who can succeed at multiple tasks and who can develop a highly individualized profile that will inspire parental pride and attract the attention of college admissions committees. Some adolescents do remarkably well at this, and the full resources of their environment may be marshaled in support of these goals Others may feel the cards are stacked against them, as the resources needed for such accomplishments are lacking in their school or community, at home, or within themselves.

Given the multiple tasks expected of them, many students we interviewed led weekday lives that were highly scheduled, with activities and sports both before and after the formal school day, often followed by a part-time job. The hours that remained were often spent doing homework not completed during school hours, watching television or listening to music, and spending time with friends and family. For many students, however, there were few structured opportunities for engagement outside of academic classes, either within their schools or their neighborhoods. Considerable variation existed in the degree to which communities and schools provided the facilities and resources to help adolescents make productive use of their time.

The experience of schooling for adolescents differed widely by community, school type, academic track, and the socioeconomic conditions of both the students' families and their neighborhoods. Per capita spending for students varied even within the same urban area and created a range of resources and opportunities for students; how students viewed the purpose of school and its role in their own lives often differed accordingly.

Most students seemed to view school in pragmatic terms, as a necessary step toward either a job or college admission, but they were uncertain about the specific connections between their coursework and their vocational plans. Without exception, the schools we studied seemed to be oriented toward preparing individuals for further education, in spite of the fact that large numbers of students enter the workforce immediately after graduation.

Students expressed appreciation for enthusiastic teachers who made material interesting, demonstrated concern for students, and were not overly reliant on lecturing as their primary mode of teaching. Math classes were frequently mentioned as favorite classes, and students in honors and accelerated classes were most enthusiastic. Tracking was a controversial topic, and both students and teachers expressed particular concern about the correlation between academic tracks and race. Placement into academic tracks varied widely among schools and within schools, and clear-cut guidelines for such placements were rare, often leaving considerable power in the hands of well informed, assertive parents.

Safety was a central concern in urban high schools and students worried about gangs and the potential of violence both in their neighborhoods and within the schools. Poverty, violence, and drug use are major inhibitors of adolescent academic engagement and achievement in urban communities. Teachers' roles have evolved accordingly, and teachers and administrators expressed concern about their ability to meet the complex needs of students who do not arrive at school ready to learn. Parental involvement in education was viewed as an important component of school success, but there was little agreement on what form it might best take for students of different ages, and how the schools can nurture and support it.

Being a student is one of many roles in an adolescent's life in the United States, and academic work is often not the highest priority, nor is academic achievement viewed as the only path to success. Students receive a complex and sometimes conflicting set of messages from the media, their peers, teachers, and family about the value of education in this society. This portrait of diverse opportunities, goals, and purposes may provide some measure of understanding in the interpretation of comparative studies of academic achievement.

Chapter 5

Teachers and the Teaching Profession in the United States

By: Sally Lubeck

Ms. Williams, an eighth-grade math teacher, arrives at school at approximately 7:30 a.m., 30 minutes or so before school officially begins. The school building, which includes grades 6–9, serves approximately 650 students. It is a two-story brick structure, which includes classrooms, offices, a cafeteria, library, gymnasium, and auditorium. Ms. Williams has her own classroom and personalizes it by decorating her bulletin boards and displaying students' work.

The school day is divided into 55-minute "periods." Ms. Williams teaches during five of these periods each day and has lunch and a planning period. Bells signal the beginning and end of each period, and students have 5 minutes between periods to move from one classroom to another. Most of the time, Ms. Williams remains in her assigned room, although occasionally she teaches in another room. She has a brief advisory or "homeroom" period, but students typically talk softly or study during this time.

At lunchtime, Ms. Williams eats in the school cafeteria. Teachers are allowed to go to the front of the cafeteria line—or they bring a packed lunch from home. Many eat with other teachers, but some prefer the solitude of their own classrooms and use this time to read or to prepare for the next class. Once or twice a week Ms. Williams meets with her "team" during the lunch period. During her "prep time," she stays in her room and grades papers or goes to the teachers' lounge to talk informally with other teachers. On occasion, she also has supervisory duty, making sure that students behave in the lunchroom or get on or off the buses in a timely fashion. One afternoon a week she tutors her students who are having difficulty, and occasionally she attends faculty meetings or a parent conference. More often than not, she leaves the building at 4:00 p.m. in the afternoon, approximately 1 hour after her last class. Most students have vacated the building by this time. The exceptions are students who play on athletic teams or who participate in after-school clubs or work on the school newspaper or yearbook.

Ms. Williams takes schoolwork home with her and spends an hour or so in the evening grading papers or preparing for class the next day. She also does some work on weekends. At the end of each grading period (four times per year), she will spend considerably more time on schoolwork outside of school time. She teaches during the "school year," which is 180 days long, typically running from early September until some time in June. Her salary is for the 9-month school year, although it is paid over a period of 12 months. She has time off without pay for the Christmas holidays and other school holidays and for the time during the summer months when school is not in session

Introduction

Methodology

This chapter is based on interviews and observations of 32 teachers during the 1994-95 school year as well as on conversations with other relevant persons: student teachers (two), resource teachers (two), principals (six), and teacher educators (four). I conducted all interviews and observations but two, which were conducted by Bill Foraker in West City. Of the classroom teachers I personally interviewed, 8 taught at the elementary level, 7 at the middle school level, and 15 at the secondary level. In most cases, I spent several hours or days with the same teacher, talking informally as well as formally and visiting his or her classroom for extended periods. Most of the teachers seemed accustomed to visitors, and many seemed to enjoy the opportunity to talk about their lives and work.

Research Goals

The first section of what follows describes two aspects of teachers' lives that were of special interest: (1) the personal characteristics of teachers, including a discussion of their educational background, teaching experience, motivation to become a teacher, uses of time, and methods of teaching; and (2) teacher training and professional development, including student teaching, past and current efforts at professional development, salaries, benefits, and union involvement. The second section also discusses working conditions in terms of physical environment, expectations, sources of instructional support, and locus of instructional decisionmaking and planning.

Characteristics of Case Study Teachers

Demographics. There were approximately 2.5 million teachers instructing more than 43 million students in U.S. public schools during the 1993-94 school year (U.S. Department of Education 1995a). Table 1 describes characteristics of all U.S. public school teachers compared to Case Study teachers (U.S. Department of Education 1995c). In 1991, the median age of public school teachers was 42 (U.S. Department of Education 1995b). Projections indicate that the cadre of U.S. teachers, already largely white and female, will become even more so in the 20th century.

Table 1—Characteristics of teachers in U.S. public schools compared to case study teachers

	U.S. All Teachers	Case Study Teachers
Sex		
Male	27.1	30.0
Female	72.9	70.0
Race/Ethnicity		
White non-Hispanic	86.5	66.7
Black non-Hispanic	7.4	26.7
Hispanic	4.2	3.3
Other	1.9	3.3

SOURCE: U.S. Department of Education, National Center for Educational Statistics, 1995c.

Educational background. Of the teachers interviewed for this project, half had bachelor's degrees and half had earned advanced (masters) degrees. One teacher explained that he was "ABD," that is, he had completed all the coursework necessary to receive a doctoral degree, but had not completed the dissertation. Most had attended a 4-year college or university and graduated with a degree and a teaching certificate. A few (10 percent) had become certified after graduation. The majority (71 percent) received their undergraduate degrees (BA. or BS.) at state universities, and more than four-fifths of those earning advanced degrees had done so at state universities.

Mirroring national trends, the lower grades in the Case Study schools were staffed largely by women. All of the elementary and middle school teachers interviewed were female, and two-thirds were European American. On the other hand, math and science teaching has traditionally been the domain of men at the secondary level, and the Case Study also captures this prevalence. Fully three-fourths of the secondary teachers interviewed were male. As for racial and ethnic composition 59 percent of the secondary teachers were European American, 25 percent African-American, and 8 percent each Latino and Asian American. All of the secondary teachers had taught for at least 3 years, and the majority (67 percent) had advanced degrees.

Teaching experience. Table 2 shows that most U.S. teachers have been teaching 10 or more years. The teachers interviewed for the Case Study included both new and very experienced teachers, although as table 2 also illustrates, over half had more than 10 years of teaching experience.

Table 2—Percentages of teachers teaching various lengths of time

Years of Experience	U.S. Teachers	Case Study Teachers
Less than 3 years	9.7	13
3-9 years	25.5	20
10-20 years	35	37
More than 20 years	29.8	30

SOURCE: U.S. Department of Education, 1995c, p. 78.

All of the Case Study teachers reported having taught more than one grade level and all but five had taught in more than one school. Case Study data illustrate a pattern in which young teachers, particularly at the elementary level, were moved from year to year, while more experienced teachers were able to continue with the age groups they preferred.

Since the focus of the Case Study was on math and science instruction, all of the teachers interviewed and observed at these levels were math or science teachers. Among the elementary school teachers, all but one teacher taught all the major subjects, including both math and science. At the middle and secondary levels, teachers generally specialized in one subject area. Since mathematics is often tracked in middle schools and science is not, middle school math teachers reported teaching different levels of math (e.g., "geometry, algebra, eighth-grade math" or "transition math, prealgebra, algebra"), while science teachers taught general classes (i.e., "physical science" or "seventh- and eighth-grade science") which included students at all levels of ability.

Most of the secondary school teachers in the Case Study taught two or three subjects (e.g., physical science and biology). The extremes were a suburban science teacher who taught three double periods of the Advanced Placement (AP) biology, and an urban math teacher who taught six different courses: technical math 1 and

2, geometry, advanced algebra, AP calculus 1, and AP calculus 2. Only one of the secondary teachers taught outside his main assignment areas—he did so by teaching one computer—science class.

Information gathered from interviews with these teachers during the course of the Case Study helps to provide a broader picture of teachers' lives. The following sections address the findings from several questions that were salient in the interviews with teachers. These were:

- What motivates individuals to become teachers?
- What makes a good teacher?
- How do individuals become teachers?
- What experiences have they had as teachers?
- How do teachers spend their time in and out of school?
- What methods do teachers use in teaching math and science?

Teachers' Personal Characteristics

Motivation to Become a Teacher

For some of the Case Study teachers the desire to teach was longstanding or determined early during their college years. One such teacher simply stated: "I always knew I wanted to become a teacher." Others explained that they "never intended to teach" and only came to it gradually, generally because of dissatisfaction with another line of work. For example, a young single mother who had been teaching for 3 years explained her emerging desire to teach in this way:

> I didn't want to go to college. I had computer training while in high school, and I got a job in a corporation, and I was a secretary to the corporate lawyer. And everybody was wearing the same stuff. I wanted something different. I decided it wasn't the way to go. I thought teaching was a way I could use my creativity and work with children at the same time. So I went into education, and I really enjoy it.

Many women teachers commented that being a teacher made it easier to both work and have a family. When I asked one elementary teacher why she thought most became teachers, she laughed and commented, "June, July, and August," but then quickly added, "It's a really big advantage to have the time off in the summer to spend with your children. I love summers off; I love the time I get off." Others also mentioned that they appreciated having time with their children in the summers. Indeed, since most teachers are women—and mothers—this explanation captured what might be considered a major incentive to enter and remain in the field. Many teachers also reported that they liked children, wanted to "make a difference," or wanted to do something they considered creative or meaningful.

What Makes a Good Teacher?

Teachers at different levels of schooling tended to define a "good" teacher in slightly different ways. Those working in elementary schools seemed more child-focused in their discussions and believed that a good teacher was a kind person, one who was "understanding," and "sensitive to the needs of children." Elementary teachers who expressed sympathy for children were more likely to imply that some parents were not doing their job. Teachers also thought that a good teacher needed to know what she was doing. Some elementary school teachers complained about other teachers whom they perceived to not work very hard or not understand the material they were supposed to be teaching. Often, however, it was the social aspects of teaching—the work with children—that were accentuated.

The secondary school teachers generally considered themselves subject-matter specialists. Good teachers had to know how to teach their subject. It was a plus if students liked a teacher, and, indeed, some felt that having a sense of humor and an ability to handle a class increased the likelihood that students would learn, but the teacher's primary responsibility was to teach.

Middle school teachers pointed out that many schools were changing from a "junior high" to a "middle school" model, because young adolescents still need the support and "family-like" concern more characteristic of elementary schools even though, in the middle school, they would be taught by a number of teachers. The middle school concept utilizes a team approach in which a group of teachers works with the same students and thereby is able to give them more personal attention.

Becoming a Teacher

This section introduces the United States system of teacher training. It describes some of the student teaching experiences reported by Case Study teachers and reports on three innovative approaches to professional development.

The United States teacher education system is tiered. Generally, a high school diploma is needed to teach young children (ages 2-5); a bachelor's degree is required to teach children from kindergarten to 12th grade, and a doctorate has become mandatory for teaching at the college or university level. The K-12 grades are usually divided into 3 levels: elementary (K to grades 5 or 6), middle (grades 6 to 8 or 9), and secondary (grades 9 to 12 or 10 to 12). Students who are preparing to teach at one of these levels must attend a college or university for 4 years, major or minor in education, and earn a teaching certificate. Some states require students to take a test for entry or to have attained a minimal grade point average. Typically students will enter a department of education in a college or a school of education in a university after 2 years of general study. It is also possible to acquire a teaching degree after graduation by taking additional courses post-baccalaureate or by entering a Master of Arts in Teaching (M.A.T.) program.

Because the United States education system is decentralized, each state education agency (SEA) has its own guidelines and requirements for earning and maintaining a teaching certificate. All teacher education programs must earn approval from the state in which they are located and, in about half the states, approval from the National Council for Accreditation of Teacher Education (NACATE) as well.

A teaching certificate earned in one state may or may not be recognized in another. Increasingly, states are also requiring that prospective teachers demonstrate some minimal level of competency by passing a competency test before they are allowed to enter the profession. Many now require that teachers also renew their certification by continuing to take "renewal credits," i.e., a certain number of college courses or inservice workshops within a given time period while teaching. In some states, a master's degree confers permanent certification. In general, renewals are premised on the belief that teachers must extend their knowledge base rather than demonstrate performance. However, teacher induction programs were instituted in many states during the 1980s (Darling-Hammond 1990). In these programs, a new teacher typically receives provisional certification and is observed over the period of a year. Permanent certification is granted if the teacher performs adequately according to the standards established by the state.

Some states also sponsor additional "endorsements" that may be added to a certificate. The state of Michigan, for example, offers four endorsements: the ZA (early childhood), the ZE (general elementary, K to grade 6), the ZD (middle school, grades 5 to 9), and the ZF (secondary, grades 10 to 12). Teacher training institutions must meet state guidelines in order to offer an endorsement. In addition to earning a teaching credential, prospective teachers typically must take 18 or more hours of college-level credits, including 1 or more practica that are targeted at teaching a particular age group. When the job market is extremely competitive—as is the case in some communities and regions—an endorsement provides an additional qualification for employment. The endorsement may also be a requirement.

Teacher shortages exist in some areas, especially in large urban school districts and in the rapidly expanding cities of the south and west, and in some subject areas. Since the 1980s, shortages have been especially notable in math and science (general science, biology, chemistry, and physics) (Darling-Hammond 1990). In order to meet the need for math and science teachers, some school districts have allowed qualified individuals to teach with provisional certification and established special mentoring programs that encourage people to leave business and industry to enter the teaching profession. "Teach for America" is another innovative program that recruits highly qualified college students who have completed their undergraduate studies and places them in urban and rural schools after one summer of training.

States delegate authority to local educational agencies, more commonly referred to as school districts. Districts run schools and directly hire the personnel who work in them. Most U.S. teachers belong to teacher unions, and it is the unions who undertake "collective bargaining" with the district, in some states, however, such bargaining is illegal, and the union's function only as professional organizations. College and university programs vary in the amount and kind of practical experience and theoretical knowledge that are deemed important in teacher training programs. Although students complain that they do not have enough "hands-on" learning, many college educators are now stressing the importance of developing "reflective practitioners" (Schon 1983); that is, teachers who are capable of thinking deeply about what they are doing and tailoring their practices to the diverse learning styles and needs of children.

Student Teaching

Students may be required to have one or more "practica" during which they observe an experienced teacher or tutor students. During student teaching, a student works with one teacher and shares teaching responsibilities with this teacher. Case Study teachers did not describe a uniform student teaching experience. The most protracted experience was reported by a fourth-grade teacher who explained that her college required students to "do observations and assist in a kindergarten on the campus and at a local elementary school" during the junior year; in her senior year, she did her student teaching over two semesters at two different grade levels, three and six. A female middle school math teacher, who had a double major in elementary education and secondary math, described the shortest student teaching experience. She reported doing half of her student teaching in a fourth grade and half in a high school—four and a half weeks in each.

The conventional route through student teaching seemed to consist of 8 to 12 weeks in 1 school with 1 teacher. For example, an eighth-grade mathematics teacher described her student teaching experience as "8 weeks at the end of the year." A number of teachers recommended that student teaching be extended over a longer period of time and with two different teachers.

Teachers were asked about their student teaching experience. Some stories were memorable, if undramatic:

> One of the teachers I worked with was particularly good. I knew how to plan a lesson but not a year. She showed me how to teach seven or eight subjects at once and how I could arrange topics in the books to integrate with other subjects. She showed me how to make long-range plans. You won't believe it, but I had a course in scouting, camping, and recreational leadership that was really useful. We learned how to keep kids busy for 5 minutes, how to lead songs, tell stories, and entertain. At the end, we spent a week as camp counselors with the students we had done our student teaching with. (A female fourth-grade teacher at East Elementary in her 19th year)

Others described events that required them to rise to the challenge of difficult circumstances.

> My main supervising teacher had to go to the hospital . . . . so she was out for the entire month of May. So I picked up more of her class time and was teaching five classes as a student teacher. At the time you were only supposed to have three. I had five preparations, which, as I look back on it, was kind of predicting the future, because right now I teach six classes, with six preparations. They're all special sections. So I think, you know, it started way back then, but it was a very good experience. I was always very quiet, shy, afraid to raise my hand, because I was afraid to be wrong. I was a perfectionist; that was the main thing. I was afraid to make a mistake. And I was real nervous, but—I remember the day I had to teach my first class. It was the second period in the morning—I still remember—but as soon as I opened my mouth, all of it went away. It was just like—I was born to be there. (A female high school mathematics teacher at Uptown High who has taught for 26 years)

> It was a small school [in a rural county]. I taught students in biology. The bad part about it was they had me student teaching under two teachers, which I didn't particularly like. One of the teachers was very attentive, was very hands-on, and was there to observe a lot. She taught anatomy, and I taught some anatomy under her. The other teacher was a male, probably in his mid-50s . . . . and he was the one you always heard you didn't want to get. You know, 'Here's the class. Enjoy it. Bye!' And that was the last I saw of him. So I relied on the lady. Her name was Ms. __________. She really helped me a lot. So it wasn't as bad as it could have been. (A male high school physics teacher at East High who has taught for eight years)

Some teachers reported being left alone with a class from the first day of student teaching, while others were allowed to slowly ease into the routine. Teachers varied in their opinions about this. Some, like the teacher above, preferred to have the regular teacher observe and comment about their teaching. Others felt that they learned by doing and benefited most from simply being left in charge.

Professional Development

Many changes are occurring in staff development practices throughout the country. Where teachers traditionally were expected to listen to experts or be trained in new techniques during "sit and get" workshops, today the focus is on enabling teachers to study and improve their own practice through such strategies as site-based management, strategic planning (e.g., school improvement plans), on-the-job learning, action research, study group, and joint planning (Sparks 1995).

Although these ideas feature prominently in the recent literature on school reform (Darling-Hammond 1994; Little 1993; McLaughline & Talbert 1993a) and seem to animate much of what is transpiring in professional development schools affiliated with schools of education, most teachers interviewed for this project seemed to be only peripherally aware of them. In their experience, opportunities to interact with other teachers occurred during monthly faculty meetings, a regularly scheduled department meeting, or infrequent staff development workshops.

Some school districts were able to offer much more extensive opportunities to teachers for their development. For example, Rockefeller Elementary, a wealthy suburban school district, had an extensive budget for staff development and an array of resources for teachers to acquire new knowledge and to learn new approaches and techniques. Courses dealing with computers, writing, learning, and approaches to teaching were offered at the request of teachers themselves. At East Middle School, most staff development workshops were "for teachers, who aren't computer literate," but courses were also offered countywide in "the use of manipulatives, graphing calculators, and geometry." These courses were typically offered one day a week for 2-3 hours after school for a period of eight weeks.

As mentioned earlier, some states have also initiated statewide efforts to foster professional development and improve teaching by mandating that teachers earn renewal credits in order to maintain their certification. For example, in 1 state where Case Study interviews were conducted, teachers were required to earn 15 renewal credits every 5 years. They receive 5 credits for teaching full-time and additional 10 credits could be earned through such traditional channels as university coursework, summer school, and school and district workshops.

Salaries

Responses on a 1990-91 survey of "Recent College Graduates" (RCG) indicate that individuals who majored in education earned on average $19,100 in the year after graduation, a figure less than graduates in all other fields except humanities (U.S. Department of Education 1995c). In 1991, the average salary for all full-time teachers was $25,983 while the average salary for all recipients of bachelor's degrees was $38,530. Once again, individuals in the teaching profession earned less than those in all other fields. (U.S. Department of Education 1995d).

The salary range for teachers is determined by education and experience as well as by locale. Teachers who have earned "masters plus 30 credits" earn more than those with masters' degrees; teachers with master's degrees, in turn, earn more than those with bachelor's degrees. Salary increases are typically and predictably gained with increased experience, although "merit pay" has been adopted in some school districts. Finally, teachers in the northeast earn more than teachers in other parts of the country, largely because of the higher cost of living; teachers in the south earn the least. Teachers who work in suburban school districts or in large towns typically earn more than teachers in either urban or rural districts. One-third of all teachers report receiving additional compensation for sponsoring school-related activities, while one-quarter earn additional money by working at another job during the school year or in the summer.

Unions

Nine out of 10 U.S. teachers are members of 1 of the 2 principal teachers' unions in the United States.

Teachers' Working Conditions

In this section, I describe commonalties among U.S. schools, as well as ways in which teachers—and researchers—perceived schools to differ. The variability is due in large part to the strong reliance on local property taxes to fund U.S. schools. Teachers in low-income schools are shown to face the greatest challenges within the classroom and yet have the fewest resources to address them. Reform efforts, therefore, have differential effects on teachers, depending on the type of school and district in which they work. Also, as will be demonstrated, the effects of reforms initiated at the local, state, and federal levels can be cumulative—and even counter-productive.

In subsequent sections the following questions are addressed:

- How do teachers use their time both in an out of the classroom?
- What methods do teachers use to teach math and science?
- What are the physical environments of schools like?
- What is the culture of expectations with regard to students' behavior and learning outcomes?
- What sources of instructional support exist for teachers?
- How are teachers involved in instructional decisionmaking and planning?

Uses of Time in the Classroom

United States schools are typically in operation 180 days per year, but teachers are usually expected to work a few days before and a few days after the official school year. All but one of the schools visited—a year-round school—were open from September until sometime in June, a schedule that originated when the United States was predominantly rural and most families lived on farms. The school year is usually divided into two "semesters" (September to mid-late January and late January to June). Virtually all schools we visited operated during the daylight hours, beginning sometime between 7:00 and 9:00 a.m. and ending between 2:00 and 3:30 p.m. in the afternoon. Typically, differences in start and end times depend upon bus schedules, i.e., on whether elementary, middle, or secondary students are picked up first or last. Nearly two-thirds of the Case Study teachers reported spending between 7.5 and 9 hours each day at school. A smaller percentage (18 percent) said they spent 6 to 7 hours in the building, while an equal percentage reported being there between 10 and 11.5 hours each day.

Middle and secondary school teachers worked with different groups of students over the course of the day and specialized in particular subjects. Despite their differences, i.e., one "middle" school was located in a K-8 school and another was a "year-round" school, all had shifted from the old "junior high" concept to a "middle school" format in which teachers work in teams. The secondary schools, by contrast, were far more individualized. Teachers belonged to "departments," but their schedules were not coordinated with those of other teachers. Nonetheless, the schedule in secondary schools, orchestrated as it is by bells, which signal the beginning and end of each period, is largely beyond the control of individual teachers. These periods are sometimes referred to as "hours" (e.g., first hour, second hour), although, in the schools visited, a period (except for "double periods") was always less than an actual hour. Typically, students have 4 to 5 minutes to get from one class to another "on time."

Elementary schools. Because elementary school teachers are assigned to one group of students, teachers' schedules among schools and even within schools were found to be highly variable, except for the regulating functions of recess, gym, and lunch. Not only did schools start and end at different times, but teachers also taught subjects at different times of the day and for different lengths of time. In addition, schedules could change from day to day or from one time period to another. Teachers in high-income elementary schools, in comparison to teachers in middle- and low-income elementary schools tended to have the most flexible schedules or the greatest amount of planning/free time, or both.

In every elementary school but one, teachers taught the same group of children most of the day, and they taught all of the principal subjects: language arts, math, science, and social studies. Across elementary schools, math and reading were often—but not always—taught in the morning and science and social studies in the afternoon. In every case, science was scheduled during the last or the second-to-last period of the day. The daily schedule for a fourth-grade class at East Elementary School illustrates a typical schedule at this level of schooling. There were 5 periods in the day ranging from 30 to 80 minutes in length. In addition, there was a lunch break, and the teacher had one planning period a day during which students attended activities outside the classroom, such as physical education, music, art, or library. Math and language arts were taught every morning for 1 hour each. The subjects of science and social studies, however, were taught only 2 days a week each for an extended period of 1 hour and 20 minutes.

Teachers in Rockefeller Elementary School largely ignored state guidelines regarding how time was to be used during the school day. In the classroom of one fourth-grade teacher, I noticed that the schedule on the board was not the schedule she followed. Later, during our interview, I asked her about this, and she laughed, "I see my curriculum as a balanced diet. They won't have everything every day, but, over time, the children get everything they need." This teacher had "planning" time when the students in her class went to other teachers for physical education (three times a week), art and music (twice a week), computer (not every week), library (not every week), and lunch. A math resource teacher also came to work with the class three times a week (for one-half hour each time). The teacher went outside with the children during recess, a time she described as being enjoyable, because it provided an opportunity to speak with other teachers.

In this school, teachers virtually ignored dictates from the state not only regarding the use of time but also regarding testing practices. One teacher commented: "If you are interested in test score results, we are not the best school to look at, because we don't care about that." In another conversation, a teacher bristled: "The stupidest thing they ever did was to concoct state-mandated tests. Don't they realize that kids aren't all the same?"

At Midtown Elementary, time use was dictated both by the state and by the district school board. A fourth-grade teacher graphically described the effect of this regulation:

> Teacher: You know the district is saying you need to have this, then you need to have so many hours, you need to have . . . . you know. And I guess the hours are state-mandated and, you know, this needs to be done by this date and then . . . .
>
> Interviewer: When you say hours what do you mean?
>
> Teacher: For fourth-grade level you need to have *in your day* 170 minutes—is it 175 minutes?—of language arts. Math is 60 minutes, and this is daily, and we're getting all this pushed at us, and it's [voice changes] OK, I'll fit it in here; I'll fit it in here, and . . . . If it's not done, then basically you get slapped on the hand and told, well, you've just ruined everything.

This teacher later explained the frustration of being caught in the middle when the school is promulgating one approach but the state requires that a certain amount of time be spent on each subject:

> You have to have these hours and so you have to put them in somehow and you have these minutes, and you have to put them in somewhere. We're trying to go to whole language, but then we have all these structures that are saying, well, you have to use this many minutes. Well, how can you get too many minutes in a whole-language program?

Teachers at Parks Elementary had even less control over time. They had to account for every minute of their day by keeping lesson plans that listed the activity planned for each subject area and the time allotted for it, and these had to be turned in to—and approved by—the principal at the end of each week. Because students are constantly pulled out of classes for second-language instruction or pulled in as part of the "inclusion" program, teachers felt they must teach key subjects when the greatest number of children are present.

Teachers in Rockefeller Elementary taught classes that were more homogeneous; they had smaller classes and more assistance, experienced more control over the curriculum, and expressed more enjoyment in practicing their craft than did teachers in the low- or middle-income area schools.

Secondary schools. As mentioned above, secondary teachers also have their time partitioned over the course of the day, but they specialize in a particular subject or subjects and teach different groups of children as the day progresses. Secondary schools differ in the number—and length—of periods across the school day.

For Case Study teachers these ranged from six to nine periods. All teachers had a period for "planning" and a period for lunch.

Most science teachers have "double periods," so that there will be time for laboratory work. When I asked an earth science/geology teacher about the purpose of the double period, he explained it in this way:

> To allow you to do a decent lab. You could do labs in 42 minutes . . . . but [a double period] gives you a chance to do some really in-depth labs, some higher-level labs. If you figure a 42-minute period, by the time you've taken attendance, got the kids on to what you're talking about, let's say that's 5 minutes. Then you've got to go through introducing the lab and getting all the materials out and set up. That's at least another 10 minutes. Then they get going on it. Well, you've already lost 15 minutes, so you're down to, what, 30, less than 30 minutes, 25 minutes. Then you've got to have them conduct the lab. Well, if you want to do something scientifically . . . . you want to get as many trials as possible. And if you're only allowing 20—well, you've got 10 minutes for clean up—you're down to about 15 minutes. You can't get anything done.

With extra time, he explained, "you can have more of an introduction and more follow-up afterwards." Lab time was generally valued by the science teachers—and structured into their day. The weekly schedule for this teacher appears in table 3 below.

Table 3—Weekly teaching schedule of a secondary science teacher

Period	Monday	Tuesday	Wednesday	Thursday	Friday
1	earth science	earth science	earth science	earth science	earth science
2	earth science	(prep time)	earth science	(prep time)	(prep time)
3	geology	geology	geology	geology	geology
4	geology	(prep time)	geology	(prep time)	(prep time)
5	lunch	lunch	lunch	lunch	lunch
6	geology	geology	geology	geology	geology
7	geology	study hall	geology	study hall	study hall
8	geology	geology	geology	geology	geology
9	geology	(prep time)	geology	(prep time)	(prep time)

NOTE: Two successive periods are lab sessions. This teacher had additional preparation time allotted because he was responsible for lab work in two subjects.

Uses of Time Outside the Classroom

Supervisory duties. In some cases, teachers performed supervisory duties as part of their teaching load; in other cases, it was for additional pay; in still other cases, teachers were relieved of such responsibilities. Some teachers described supervisory duties that were assigned when there was a reduced academic load.

One middle school science and math teacher explained that because she had a double period off—"no elective this term"—she had cafeteria duty all week. An elementary teacher said that the previous year teachers could volunteer for lunch duty for extra pay. However, this year parent "aides" had been hired to do this work. Some teachers described "bus duty." A fourth-grade teacher said that she had bus duty four times a year. She felt this was "no big deal." She met the children at the bus about 8:00 a.m. and escorted them to the gym where they played until 8:15. Then they were free to go to their classrooms. A middle school teacher in a high-income district described "contract lunch duty" as "a stipend for people who need the extra income." She said she saw value in it when she did have it—"a no-brainer"—but also "value in being in your room at that time, because our kids are so overscheduled outside of school that lots of the make-up time is during lunch." Other teachers had "hall duty," and, in one urban high school visited, teachers on hall duty were expected to "stand guard" for the period. They were equipped with walkie-talkies, so that they could request help.

Interaction with other teachers. Both the isolation of the work and the number of hours that U.S. teachers are scheduled to teach work against the informal collegiality and mentoring that may exist among teachers in other countries. As noted in America's Teachers (USDE 1993a, p. 128):

> The isolation of classroom work has been commented upon by a number of researchers who study teachers and their work. Teachers have less contact with their peers than do many other professionals. In fact, some classroom teachers rarely communicate with other adults during the workday, and even fewer teachers frequently consult with peers or supervisors concerning professional challenges.

The average teacher who teaches in a department is responsible for five periods of instruction per day, allowing little time or opportunity for professional interaction. As Louis (1992, p. 150) concluded from results of a study of teachers' work, "What mattered most to teachers was a resource—*time*—that was, either by policy or by practice, within the discretion of the school. Time was important because it was the backbone for staff development and collaborative work efforts." In a study of teachers' work, Johnson noted that collegial interactions were pushed to the margins of the workday, such as before and after school and while supervising recess, leading to superficial exchanges. "Virtually never did schools reserve adequate time to encourage teachers' continuing collaboration or convey the organizational message that time spent with colleagues was legitimate and would likely improve teaching and schooling" (Johnson 1990, p. 149).

Interviews with Case Study teachers confirmed these research reports. Teachers generally reported that they had little time to interact with other teachers during the school day. Although there was a teachers' lounge in each of the schools visited, none was crowded on the days visited. The ambiance of these spaces varied considerably across schools. In Midtown Elementary, the lounge was used more as a workroom/lunchroom than a lounge. It was filled with long tables and metal chairs, a soda machine, cutting board, and laminating machine. Teachers used the small adjoining kitchen to make individual cups of coffee. In Rockefeller Elementary, the lounge had plants in the window and flowering plants on the tables. A pot of coffee was made, and fresh bread was set out on a table. The room contained comfortable couches and chairs and a profusion of magazines. A telephone and computer were also available, as was a photocopy machine in an adjoining room. In both these schools, however, only a fraction of the teaching staff was observed in the rooms briefly before school and during lunchtime.

In general, there was little time for the teachers in all of the schools to interact with other adults for extended periods of time during the school day. Only the middle school teachers, who met in teams, had scheduled time to plan and confer with others on a regular basis. The middle schools generally espoused a "team" approach, and teachers at each were making efforts to meet on a somewhat more regular basis. Even so, there was variability across sites. A teacher at East Middle School stated that she met with her team "20 minutes at lunch" and for occasional planning. By contrast, teachers at King Junior High in Metro City met everyday. They explained that their eighth-grade team was new; two teachers had taught seventh-graders the previous year, and two were new to the district. Thus, they had met once a week throughout the summer "to get organized." The team is composed of five "subject matter" teachers (math, science, language arts, "thematic studies" or reading, and social studies) and a special education teacher. They all teach the same 150 students.

At this school the schedule was organized to maximize teacher collaboration. As the team leader explained, "We use the time; it doesn't use us." For example, a teacher might teach three classes of 40 minutes each in the morning, have personal planning time and lunch, then teach two classes, have "team time," and a homeroom period for discussions and announcement (10 minutes). Since both the seventh- and eighth-grade science teachers were new, there was enough flexibility in the schedule for them to work together as well, and they reported using that time to organize supplies and help each other with lessons. Teams could also "block the schedule" so that they could have all students together for special events such as "mousetrap races," a math/science project, a play, or film.

Many other teachers said they saw other teachers "in passing" or "in the hall." When they did see others, they reported talking about things unrelated to school. For example, one secondary school teacher commented that he and other teachers had a "no shop" rule at lunch-meaning that it was taboo to talk about school—related issues. Virtually all teachers said that they were expected to attend regularly scheduled departmental or all-school meetings. A few teachers also reported that teachers in their building had organized routine social time. For example, teachers in two of the elementary schools tried to go out for lunch on Fridays, but this was described as a mad dash to a local fast-food restaurant, rather than a relaxing time away. A middle school teacher told of "Fat Friday" at her school. Once a month people took turns bringing in doughnuts, which encouraged teachers to congregate for brief periods of time. About one-third of the teachers interviewed reported seeing other teachers socially outside of school.

Time out of school. Some of the teachers in this study described a clear separation between work and home or between their professional and personal lives. This separation had both temporal and spatial markers. That is, these teachers tended to describe teaching as work that was time and space specific, delimited by the school day and by the school walls. Comments such as the following characterized this orientation:

> Teacher 1: I try to keep work separate from the rest of my life, so I try not to take it [schoolwork] home with me. (Male high school math teacher)
>
> Teacher 2: I leave at 4:00 p.m. If I can't get everything done [by] then, what is left can wait. (Female middle school math teacher)
>
> Teacher 3: If it doesn't get done at school, it doesn't get done. (Male high school science teacher)
>
> Teacher 4: I feel more refreshed and enjoy work more if I can get away for some time each day. (Female fourth-grade teacher)

A Springdale High School mathematics teacher commented that his "family comes first, so I don't like to take things home with me. There is enough time for me to do everything I need to do here." A male science teacher had three small children at home and was responsible for them in the evenings, while his wife worked. Hereported doing schoolwork before school, on weekends, and "in the spaces."

Many teachers described doing grading or preparation in the evenings or on weekends. A number of teachers commented that they had to work extraordinarily hard (e.g., "every waking moment," "100 hours a week") when they first started teaching, but once they could draw on a backlog of experience, they felt they could ease up. However, there was no clear correlation between length of experience and amount of time teachers reported spending on schoolwork in or out of school.

For still other teachers, schoolwork has no clear boundaries; teaching for them is an all-consuming profession. These teachers expressed a love for teaching-both for the students and the subject. Nearly all taught in "high-income" schools. The exception was a female math teacher who prided herself on having six preparations at Uptown High, a multiethnic high school in an urban district.

> I love calculus. I've taught that for 19 years, with very good success, and approximately 75 percent of my students have passed the AP test. That's taking all the years together. About 2 years ago, I had 96 percent [pass]—just one student who did not pass. We're talking about 23 students in a regular old high school. We had the best results of all the public schools in the city of Pine. Better than the magnet schools and the specialty schools. And the kids have gone on to college. I have contact with a lot of them. A lot of them are now working as engineers, doctors, and computer people, doing all kinds of wonderful things. A lot of them come back, or call me up, write me a note.

An elementary teacher described arriving at school at 6:30-6:45 a.m. and sometimes staying until 9:00 p.m. at night. She was in charge of staff development for the district, and, though "exhausted," her eyes sparkled as she described the wealth of experiences she helps to orchestrate: an all-school journal, a young authors' conference "where their stories are sent to published authors," and a unit on South Africa. Words like "wonderful," "extraordinary," and "exhilarating" animated the conversation of these teachers, sometimes along with phrases like "I don't know how long I can keep this up" or "I'm exhausted much of the time."

An AP biology teacher, who has student experiments littering her classroom and who does "real science" with a small number of students before school and on weekends, described her involvement:

> Well, I usually get there before 7:30 a.m.; on lab days I get there between 6:30 and 7:00 a.m. It's certainly not unusual for me to stay until between 5:00 and 6:00 p.m. at night. It just gets away from me . . . . I'll put in a long night at home, but it's hard to do that if I don't have to because I'm so exhausted. If you get up at 4:30 a.m. and it's 9:00 a.m., you're not real efficient. And usually I'll catch up on the weekends . . . . I mean, science is a lot of work. The good scientist, somebody who's really cutting edge, they're (sic) probably spending 80 hours a week in the lab minimum. You know, they're in there all the time. It's . . . . a day and night kind of job. So I don't know, I wonder

sometimes how long I'm going to last. I do. I honestly do. I can't imagine myself teaching at this level of involvement for too long.

Methods of Teaching Math and Science

Teachers discussed and exhibited a variety of teaching practices, ranging from teacher controlled to learner centered. These included lecturing, a "question-and-answer" format, group work, "hands-on" activity, and individualized instruction. Examples of each will be described.

Observations of the teaching of math and science revealed, in general, that practices did not differ notably across grade levels and across sites. In most instances, teachers were in charge and controlled the interaction. They lectured and asked questions on a particular topic, expecting students to "fill in the blank," i.e., provide the precise answer they were looking for, so that the logic of the argument they were building could be demonstrated. Some teachers did this with remarkable skill; they appeared to be thoroughly grounded in their subject and presented material in an interesting, logical, and sometimes entertaining manner. This was particularly true when experienced and dedicated teachers were teaching students who were considered "advanced."

Lectures. At Uptown High, I observed a chemistry class taught by Mr. V. He had taught for over 35 years and was planning to retire soon. There were 23 students in the class, 19 of whom were Asian American. All sat on stools at lab tables. The teacher remained at the front of the class during the period, pacing back and forth and writing on the board as he spoke. During his interview, Mr. V. told me that he was from the "old school" and liked to lecture. The observation proved to be a case in point; there was more teacher talk—for example, asking and answering his own questions—in the example that follows than was the case in most of the classrooms observed.

> Teacher: Suppose I wrote the equilibrium this way:
>
> $SO_2 + 1/2\ O_2 = SO_3$
>
> $SO_3 = SO_2 + 1/2\ O_2$
>
> If I only know this, how do I write the relationship?
>
> Student: It's a reciprocal.
>
> Teacher: Yes, when we reverse, the constants change and become a reciprocal.
>
> What's the relationship in terms of their K? [K is an equilibrium constant.]

> He writes an elaborate formula on the board. For the most part, the teacher talks and develops the argument. Occasionally he will ask a question that can be answered in a word or brief sentence.
>
> He then shows how the formulae look with gases, and then presents a 'famous equation.'
>
> $PV = nRT$ [the "ideal gas law"]
>
> $$P = \frac{nRT}{V}$$
>
> [Note: In this equation, P = pressure, V = volume, T = temperature, and R = ideal gas constant.]
>
> At the teacher's question, a student explains that (n) indicates moles per liter at equilibrium. The teacher then describes chemical equations that utilize the ideal gas law. After writing the assignment on the board, he explains homogeneous equilibrium.

For most of the lessons the teacher lectures, both asking questions and answering them in rhetorical fashion. He is well versed in his subject and "getting it right" is important to him. However, the fact that he uses this mode of instruction suggests that he is primarily concerned with subject matter. Most students are attentive and try to follow the logic of his argument.

Initiation-response-evaluation. In this sequence, a teacher asks a question (initiation), a student provides a response (response), and the teacher then evaluates its merits (evaluation). Teachers may also provide an explanation. One example will suffice:

> An eighth-grade algebra class: The problem is $3x - 4 = y$.
>
> Teacher: How do I get it over here? If 4 is being subtracted here, how do I get it to the other side?
>
> Student: Add it.
>
> The teacher writes the correct answer on the board: $3x - y = 4$.
>
> Teacher: OK, add it. Number 15?
>
> $$\begin{array}{l} y - 2 = 4x + 20 \\ \quad +2 \qquad +22 \end{array}$$
>
> So how can I get it in my general linear equation form?
>
> Student: $4x - y = -22$

> Teacher: Yeah, because added here, we have to subtract to get it to the other side. (King Junior High School female math teacher in her thirties)

Group work. Few teachers observed over the course of this project involved students in-group work. In the cases in which they did, students seemed either not to know how to work with others or indicated that they did not wish to do so. A physics teacher who lectured on the day I visited said that he had shifted his students to cooperative groups. After the first day or two when he introduced a new topic, students determined when and how they would perform their experiments and discussed both the procedures and the findings with one another. He had closely monitored their experience and found that students did as well through this approach as they had done previously through more "conventional" methods.

In one combined eighth-grade algebra and geometry class in West Middle School, it was apparent that students were not accustomed either to working together or to working with manipulatives. In the example that follows, the geometry students worked quietly on problems that were assigned, while the teacher introduced the multiplication of polynomials to the algebra students, first by using a black "rectangle" and colored plastic shapes on the overhead projector and then providing manipulative kits to allow students to work out problems in-groups.

> The materials were brand new, and it was clear the students had not worked with them before. The majority of time was spent removing the plastic wrap, trying to figure out how to put the boxes together, and classifying the various pieces into sets. As the students worked, the teacher helped the geometry students individually. Two of the four groups put the manipulatives away after putting the kits together and proceeded to work out the problems individually with calculators.
>
> As the period drew to a close, the teacher began to collect the kits. She circulated among the algebra and geometry students until the bell rang.

This teacher later confided to me that the students did not use the materials as much as she wanted them to, although she expected that they would use them more in the next lesson, which covered the chapter on factoring. She expressed a liking for creative, hands-on approaches to learning and saw value in shifting formats and allowing students to collaborate in-groups. She appeared secure in her knowledge of students and of subject matter and willing to "take the chance" of introducing new experiences into her classroom, even though doing so is a complicated affair, since she must juggle two classes at the same time, but also because the students seem to have difficulty—or perhaps a lack of interest—in working together.

An eighth-grade science teacher in Metropolitan School also valued group work and "hands-on" activities. Once again, however, it appeared that these students did not really know how to work together constructively. The teacher had listed on the board the six materials they would use to create float and sink columns. I observed the group of seven nearest me.

> Student (female): Now I told y'all that it would float, and it did (putting wood in the water) . . . . It's just common sense, because boats float across the river.
>
> Teacher: (To one group) You have to do each object.
>
> Teacher: OK, did the clay float? Listen. There is one object that you said would float that sank. What object was that? Now try to make it float.
>
> A student asks if the temperature of the water makes a difference.
>
> Teacher: No, it's not the control.
>
> One student flattens the clay. A couple of students throw the clay at each other. One girls yells for the teacher. She retrieves the clay and flattens it even more.
>
> Student: Put it in the water, Christina.
>
> It sinks, and another student pulls it from the water.
>
> Student: (rolls it into ball, then flattens it.)
>
> Student: (tells him to roll it into a snake.)
>
> He does and it sinks. A girl takes it and shapes it into a canoe shape. I think she saw what another group had done. The canoe sinks. Another girl makes the sides higher, and it works, but a boy quickly snatches it and rolls it in his hand just as the teacher says, "I have to see it." Two boys try to do what the girl did, but the clay sinks. A boy tries to grab it from a girl. Just as she is almost finished with a design similar to the previous one, Christina grabs the clay from her, squishes it in a paper towel and starts over. It sinks. A boy pushes a wooden block into it. It sinks. He presses the clay onto the block and gets it to float that way temporarily, but it quickly detaches and sinks. The teacher tells him to share the clay. He asks why it doesn't work, but she doesn't hear or acknowledge the question. The teacher says that they only have 5 minutes left. Except for one time early in the session when one student tried to modify what another had done, each has collapsed the clay and started anew.

Although cooperative learning and team teaching have figured prominently in discussions of school reform, only two of the classes observed were found to be engaged in-group work.

Hands-on learning. In some cases, teachers stressed the importance of "hands-on" learning. Others, however, expressed doubt or, at least, uncertainty that students would actually derive what they needed to know from working with materials. A third-grade teacher at Midtown Elementary described the dilemma:

> I'll put out the manipulatives. OK, it's time to play a little bit, but then I'm not sure they're getting the idea. You know . . . . The ones that probably need to use the manipulatives are the ones that need to work faster. So, I don't know. I have to work the system out somehow.

Perhaps conveying a more generalized ambivalence, another teacher in this school said that when math manipulatives had been introduced 2 years earlier, the teachers had referred to them as "projectiles."

At East Elementary School, a fourth-grade teacher had developed a science curriculum that contained a "hands-on" component. In this school, the two teachers at this grade level specialize; one teaches science and math, and the other language arts and social studies. The math/science teacher valued the fact that she could concentrate on two subjects and prepare them well, and she had amassed a great many materials. She also provided "double period" science for each group.

On the day I observed the teacher first engaged the students in a discussion of matter and the elements. They then watched a video on matter, the weight of matter, and change of state. It lasted 15 minutes and was presented in simple English with demonstrations of all concepts (such as melting, evaporation, condensation, and freezing). After discussing what they had seen, the teacher explained that they would be using nuts and bolts to construct their own "molecules."

> She wrote the following "elements" on the board and told the children that they are to use two or three of each.

Long bolt	Lo
Short bolt	Sh
Wing nut	Wg
Hex nut	Hx

> The children work intently. As they finished, the teacher told them to exchange their molecule with another group and to write the formula for that molecule. She went around the room to check. The children came up with the following formulas:

$LoShHx_2Wg$

$Wg_2HxLoSh$

Lo_2Wg_3Hx

$Lo_2HxLoSh$

$Lo_2Hx_3Wg_2$ $ShHx_2Wg$

At 1:40 p.m. the children were told to take their molecules apart. A student collected the bags. The teacher asked if they now felt confident about writing formulas. She discussed some of the difficulties she had witnessed, such as children writing superscripts rather than subscripts or making the numbers rather than the letters large. Finally, she distributed a worksheet and went over the terms.

> Teacher: What are the two groups that would classify elements?
>
> After a few wrong answers (charged, not charged; positive and negative):
>
> Child: Metal and nonmetal.
>
> Teacher: Elements are made of . . . .
>
> Child: Atoms.
>
> Teacher: Tell me about a nucleus.
>
> After they went through all of the terms, the children were given a brief assignment that involved organizing the terms that had been covered.

This teacher had gone to a special program dealing with elementary leadership in math and science for 3 weeks during the summer, and for 1 week the following summer as well as meetings throughout the year. She said she got "state-of-the-art" training in math. Then the principal asked her to teach science. At first she was apprehensive: "The old district science curriculum was awful, and the new one is just as bad . . . . It doesn't follow any published curriculum, and no support or materials are provided. The books are useless." She started out borrowing the fifth-grade books. She said that after attending the special program she felt she was able to teach science and math in an interesting and constructive manner.

Individualized instruction. Rockefeller Elementary was well known for the staff's efforts to individualize instruction. The teacher-made curriculum in mathematics in this school is organized around nine topics, each of which is signaled by a different color (e.g., numeration (blue), addition (pink), subtraction (yellow), multiplication (green)). There are nine levels to numeration, six each for addition, subtraction, multiplication, and division, and eight for mixed operations. Importantly, the levels have nothing to do with grade levels. For example, second-graders will do levels three and four in addition. The central idea behind the approach is that children work independently on what they need and where they are. The "Notes to Teachers" underscores this fact. This is a school "where individualized instruction is a reality. Children's needs come before a planned curriculum." The guide provides "materials developed for children by teachers who teach children."

In the example below, there were 21 children in a 4th-grade class, although only 17 were present. Two "special education" teachers were also in the room, working one-on-one with two boys. A math resource teacher had just finished working on factoring.

> I am writing as she leaves and fails to notice the shift in to individualized instruction.
>
> The children have pulled out spiral workbooks and begun working. The regular classroom teacher sits with a small group of children (the children are grouped into clusters formed by having four or five desks pushed together) and speaks softly with them. Throughout the session, she moves from cluster to cluster but sits each time and looks over children's work. The workbooks are different colors. Yellow is the book on subtraction; orange is division, and purple for mixed operations.
>
> At 10:10 a.m., the teacher announces a multiplication speed test. There is some movement and talking while forms are distributed. At 10:13 a.m., the teacher asks if they have their names on their papers: "I'm getting ready. Are you ready? GO!" The students have 2 minutes. After this time, the teacher says, "STOP! Now count the number you did." Some children are excited that they did better than before, while others moan that there is no improvement.

Although it is true that the staff in this school subscribed to an individualized approach to learning, there appeared to be a good deal of discussion about the work, and periods of individualized instruction were balanced with other, still more interactive sessions. Moreover, a critical component of math instruction was what might be characterized as the thrill of competition with oneself (e.g., the reference to "your personal best" above) or with another group (e.g., the "challenge" that one class made to another).

In sum, five types of teaching methods were observed during the course of this study-lecturing, a type of question-and-answer interaction involving initiation, response, and an evaluation (I-R-E) of the response by the teacher, group work, "hands-on" activity, and individualized instruction. The predominant mode was the I-R-E sequence in which the teacher controlled the interaction, asking questions, evaluating answers, and frequently providing the explanation as well.

Physical Environments

The United States is a nation of nearly 250 million people, living in 50 states, including Alaska and Hawaii, and spanning a distance of more than 3,000 miles on the mainland. Nonetheless, there are commonalties among U.S. schools. With only minor exceptions at the secondary level, students are in classes with others of the same age throughout their school careers. Schools are age graded, with children of a particular age range usually housed in a single building. Elementary schools are usually smaller than middle or secondary schools, and they are neighborhood-based. Within school buildings, classrooms also tend to be clustered by age (e.g., K-1, 2-3, 4-5). Teachers have their own classrooms, which they personalize by decorating bulletin boards and displaying students' work. The principal's office is located at the front entrance, and parents and other visitors are expected to stop there before proceeding further into the building. Elementary teachers generally teach all major subjects to the same group of children each year. Elementary school teachers and children are assigned to a new classroom when they move to the next grade.

Middle schools are for children in grades five to eight, six to eight, or six to nine. Middle school teachers specialize in a particular subject area and often work in teams with 4 or 5 teachers who teach other subjects to the same group of 100-150 students. In middle school, students begin to move from one class to another over the course of the day. Teachers tend to have their own classrooms, although they may move to another room or rooms to teach a particular subject. Middle schools often serve children from several "feeder" elementary schools, with children being bused to the school from their neighborhoods.

Secondary schools include grades 9-12 or 10-12. Secondary schools can be quite large, serving several hundred to several thousand students. High school teachers are subject matter specialists who teach different groups of students over the course of the day. Here also students move from one class to another at the end of each session, and, though teachers tend to have their own classrooms, they too may move to a different room as necessary. Teachers are typically expected to be at school a half-hour or so before school begins and to stay in the building during school hours. Case Study teachers varied in the amount of time they actually spent at school.

The design of the Case Study Project included schools in low-, middle-, and high-income communities in three U.S. cities. It became instructive, therefore, to contrast school and community environments. Schools differed in many ways. Many were situated in pleasant areas and conformed to the image of well kept spacious buildings with wide halls, well-equipped classrooms, libraries, and other support services. School districts had obviously allocated significant portions of their budgets to the construction and maintenance of educational facilities.

There were marked exceptions to this image, however. Some schools in suburban areas were located on large campuses with impressive facilities. At Hamilton High school, a school built for 5,000 that serves 3,000, there are remarkable facilities: a planetarium, large library and computer rooms, 15 gymnasiums, a Nautilus fit-ness center, a gymnastics center, a weight room, a swimming pool and a lap pool, 3 theaters, a store, and a greenhouse.

In stark contrast, South Central is a large gray stone building with heavy metal grates at the windows and a metal detector and armed guard on duty at the school entrance. Teachers in this urban vocational high school patrol every hall, and, in the principal's office, a closed-circuit television screen flips every few seconds from one hallway or stairwell to another. Rooms with computers are locked behind steel doors, and the furnishings and equipment have seen many years of wear.

The demands placed on teachers and the opportunities for them to be effective differed greatly in these different environments. Although the facilities in many schools appeared to be adequate or even outstanding, the contrast in some school environments was mirrored inside classrooms, where teachers faced different challenges and had resources at their disposal that differed both in kind and in amount.

Culture of Expectations with Regard to Students

The principles that organize a school are manifest in many ways, through dress codes, status hierarchies and merit schemes, formal rules and informal norms, and through stories told about what occurs within school walls. How individuals interpret these phenomena, how they talk about their experience—what they believe is possible for themselves and for their students—constitute the "culture" of an organization such as a school (Martin 1992). A thorough examination and analysis of the culture of the schools visited in the course of the Case Study Project is beyond the scope of this inquiry, but several examples of classroom activities give a sense of how teachers in typical and exceptional schools go about the business of teaching in the United States.

In the schools visited during the Case Study Project, teachers typically taught 20-30 students. Courses that are required for graduation tend to have larger enrollments than more advanced courses. Students generally sit in rows facing the teacher, whose desk is at the front of the room; in some schools, teachers occasionally cluster student desks so that children can work in-groups. As the following example illustrates, teachers often present a problem, allow class members some time to work on it, and then reconvene the class in order to demonstrate the answer was obtained.

Teaching at East City High School

> Mr. R. teaches trigonometry. The problem he poses for the students is to determine the height of a large balloon observed by 2 person's 2.32 miles apart. The height of the balloon for Individual A is 24 degrees and for Individual B, 37 degrees. Mr. R. draws a diagram of the problem on an overhead projector and points out that the two angles are unequal. He continues with a brief discussion of what it means to bisect an angle. He has been teaching mathematics for 16 years and obviously has a good understanding of the basic elements of the problem.
>
> The students work on the problem in pairs. While they attempt to solve it, Mr. R. moves about the room, asking students in each pair if they need any help. After a few minutes, he returns to the front of the room and begins to ask the class a series of questions: "How are we going to measure the height of the balloon?" "How many feet are there in a mile?" "You haven't any idea? 2,000? 5,000?" When someone in the class answers correctly, Mr. R. asks a student named Julie to "take us through the problem." As she writes the problem on the board, the class quiets down.
>
> Julie's explanation is not clear, and the teacher begins to question her. "How did you get to angle B? Didn't you have to get to angle C first?" They talk back and forth, and the teacher tries to help the student clarify her explanation. The discussion becomes relatively disorganized as other members of the class begin to participate. Once the teacher is satisfied that the essential elements of the solution have been covered, a different problem, using similar principles, is introduced.

As this example illustrates, Mr. R. expected his students to be capable of solving this problem and of providing an explanation of what was needed to solve it. It was also clear that he expected that they would be able to transfer what they had learned to another, similar problem.

Teaching at South Central High School

At South Central High School, teachers exhibited a range of responses to the factors they found to inhibit their ability to teach and students' ability to learn. Mr. J., a teacher in his mid-30s, seemed resigned to the fact that "it is hard to get things done because attendance fluctuates so much." The school principal told us that this school has many dropouts but also many students who come to school infrequently, because they are afraid of gangs, because they are needed at home, or because they do not have money for public transportation.

In the following excerpt from an algebra class occurring in the fifth month of the school year (January), Mr. J. is reviewing for a test that is to be given the following day. Thirty-five students are enrolled; 7 are present.

The book for the class is entitled *Algebra in Easy Steps.* The teacher asks questions as though he really doesn't expect anyone to answer. Only one student, sitting in the first desk in the middle row directly in front of him, does.

> Teacher: On pages 161–162, we had done problems 2, 4, 6, 8, and 10. Now we'll take a little time and do a small review on the board. Who can tell what a monomial is so we can differentiate between the two?
>
> Student: Problem with term limits on it.
>
> Teacher: (answers a knock at the door) Right. The algebraic expression with just one term limit. Polynomial?
>
> Student: Two or more.
>
> Teacher: (as he writes on the board) For example, $3x + 4y$ is a polynomial because it has two expressions. $3x$ is a monomial. Let's try a couple of homework problems that we worked. Does this make sense? [No answer.] Does anyone have any questions so far? [No response.]

This teacher perceives himself, as valiantly persisting in a situation that has become largely hopeless. He teaches to the one student who seems genuinely interested in learning what he has to offer.

Teaching at Hamilton High

The classes of the teachers that were observed in this school differ in profound ways from those at South Central Vocational High School. Most students were present, and the teachers were able to deal with subject matter that was more complex, to present material in a more rigorous fashion, and to employ teaching techniques that were interactive. The example that follows is that of an experienced, popular teacher teaching an "average" geometry class.

> In Mr. G.'s second-period geometry class there are 25 students in the class, 13 females and 12 males. He has been teaching over 20 years, and he continues to express enthusiasm for math and for teaching. Answers to the previous night's homework are projected onto a screen in one corner of the room. Students check to see if their homework is correct for the first 5 minutes. The class is fast-paced. Over the course of the 42-minute period, Mr. G. reviews the homework as well as hands out—and has the students work through—three worksheets. What follows highlights an extended segment of class time.

Teacher: Draw some pictures on the bottom. Draw the triangles and write the values, using the triangles. Do not just punch a button on your calculator. That is not the objective. I want to get the meaning, not the numerical value, at this point.

The teacher gives them about 2 minutes to do what he requests, and all are working intently.

Teacher: OK, let's take a look at these here. For a sign of 30 degrees, what triangle should I draw?

Student: 30-60-90.

Teacher: 30-60-90. How do I know it has to be 30-60-90?

Student: Because one of the angles is 30.

Teacher: Just because one of the angles is 30?

Student: Because these are right triangles.

Teacher: OK. What we're doing only applies to right triangles, so of course it's a 30-60-90. So what are the lengths?

Student: [can't hear.]

Teacher: There's an idea, What shall we call them then? What would this be? X?

Student: [can't hear.]

Teacher: Uh, I don't think so. The leg is X2 x 3, and this is X x 2. So what is the sign of a 30-degree angle? How would that go? (Repeats student's response.) Opposite leg would be X over hypotenuse, X over 2X?

Student: One half.

Teacher: One half. Wait a minute. Wait a minute. What if we knew the sides? In other words, what if I knew this side was like 6? Then what would happen?

[Repeats student's explanation.] Let's see, this would be 62 x 3, and this would be?

Student: 12

Teacher: And then what would the sign of 30 degrees be? It would be 6 over 12 which is? . . . . one half. [Students are feeding him the answers, but his voice is loud and carrying the thrust of the lesson.] Wait a minute, wait a minute, what if this were 48? The hypotenuse would be?

Student: 96.

Teacher: 96, and the sign of 30 degrees would be? 48 over 96? That's . . . .

Student: One half.

> Teacher: You mean it doesn't matter how big the triangle is? It's always the same?
>
> Student: Yes.
>
> Teacher: Ah, why? Why do they have to be the same every time?
>
> Student: Because the hypotenuse is a ratio.
>
> Teacher: Ah, it's a ratio. Well, why do ratios always have to be the same here? Say again.
>
> Student: They are all similar triangles.
>
> Teacher: All similar triangles. Of *course* the ratios, the corresponding ratios, are the same. Of course they are. They're similar triangles. So what does that mean? Which size triangle can I use to get the sign? Shall I pick this one or this one or this one?
>
> Student: Any one.
>
> Teacher: *Any* one. So could I even make it real easy, and make this length one? Would that do?
>
> Students are shaking their heads in the affirmative.
>
> Teacher: Sure, if that's one, this would be square to 3, and this would be 2, and the sign would be a half. Of course it doesn't matter. The ratios are the same. That's the whole idea right there. They're similar triangles. The ratios are the same.

This teacher orchestrates the class so that the logic of the procedures is apparent. Students provide answers but also explanations. However, not insignificantly, the ones who answer his questions follow that logic and generally provide the correct responses. The interaction works for both teacher and students (or, at the least, for the ones responding).

Instructional Support

The typical teacher in the United States assumes nearly total responsibility for the conduct and management of her or his class, whether it is at the elementary or secondary school level. While some teachers said that they had no assistance, others mentioned that an aide came in to help (grade papers, work on bulletin boards) 2 or more hours a week; still others mentioned that secretarial staff would type tests for them or do photocopying.

In elementary schools, it is typical for a teacher to be responsible for teaching all of the major subjects (language arts, math, science, and social studies), although others may be responsible for teaching subjects such as gym or music.

Students of all abilities are usually in the same classes in elementary schools, while many middle schools begin to track in mathematics, and high schools frequently track students across a range of subjects. Secondary school teachers typically teach in one subject area. The instructional support they receive seemed to be limited to secretarial help with typing or photocopying. Science teachers were totally responsible for laboratory classes that often required complicated preparation.

Many U.S. schools are also dealing with issues of diversity. Recent legislation dictates that, to the extent possible, children with special needs (e.g., physical or learning disabilities, emotional problems) should be included in regular classrooms. Children with special needs may become a member of a class or visit for some period of time each day. Because of the high influx of immigrants many schools now offer bilingual education or English as a Second Language (ESL). Elementary children whose first language is not English thus may be pulled out of their classrooms during the day for special language instruction, while middle and secondary students may be offered special classes with bilingual instructors. Schools vary, however, in the extent to which they are able to provide such services.

Efforts are also underway to establish master teachers in schools to aide new teachers and assist others as problems arise. Such a role existed, however, in only one of the Case Study schools. Most teachers worked alone in their individual classrooms, with little assistance from ancillary staff and little opportunity to collaborate with other teachers.

Because of the differential funding of schools, teachers who experienced the greatest challenges (i.e., large classes in elementary schools, students who were not proficient in English, special children included without extra assistance, limited parental involvement, and high rates of absenteeism in secondary schools) often were the ones who had the fewest resources at their disposal-and the least amount of assistance in meeting those demands.

Teaching at Parks Elementary

It is shortly after 1:00 p.m., and Ms. R. is preparing to teach mathematics. Two children labeled "BD" (behaviorally disordered) have arrived for this subject. One boy, bright eyed and interested, persists in loudly repeating everything the teacher says until he is gently reminded that this is distracting.

The teacher has prepared a lesson on number lines. Across the board, she has written in capital letters increments from one to a million.

The children read the words in unison.

> Teacher: Remember, where do you place the commas? In hundreds and thousands . . . . so after every three numbers put a comma. Why do we put a comma?
>
> Student: So we won't get mixed up.
>
> Teacher: That's a good answer.
>
> Student: So we can read the numbers.
>
> Teacher: It makes it easier to read.
>
> The teacher then asks a child to read at the top of page 18. She asks the children to look at the place value chart and calls on individual children to say how many ones, tens there are in a given number. A number of children have their hands in the air, but most give the wrong answer or no response when called on. At one point, the teacher remembers that two children (visiting from the special education class) have to go to the library.
>
> Someone then comes to the door. After conversing for 2 minutes or so, she returns to her desk, then checks to see if the children know their multiplication tables. She goes to a chart by the door and calls on four or five students: 'Leticia, 2 x 6.' The student stands and smiles but does not try to answer. 'You need to work on your twos,' the teacher reminds her. Only one child provides the correct answer. He is immediately given a harder one, and he gets it wrong. The teacher tells these children that they must write their "times tables" for homework.
>
> She returns to her desk and begins to organize the number line activity. She tells the children to put their books away and pull out their envelopes. Each envelope holds a sheet of 8 1/2 x 11-inch paper and the numbers 1 to 10 written on blue construction paper. In the process of looking for the envelopes, some children pull all the books out of their desks. During this time, 3 children who speak Spanish as their first language arrive from a session with a bilingual teacher, thus raising the number of children present to 28. Ms. R. realizes that these children were not present when the class made what is needed for the number line activity. As she begins to collect materials to help them, children become restless. About half still have books on their desks. The teacher calls out a number and tells the children to place their numbers in the appropriate folds. However, the number she calls out requires two threes, and the children have only made one of each number. When several children raise their hands and shout this out to her, she writes a different number on the board. As she begins to walk back to help the students without materials, one boy cries out excitedly, "I got it!"

In this snapshot in time, this teacher appears disorganized; her timing is off; the activity is not well planned, and little gets accomplished over the course of nearly an hour.

Examination of the context in which this teacher taught and listening to how she makes sense of the situation yields quite a different picture. First, she has taught four different grade levels in her 4 years of teaching. She is overwhelmed at having yet a new set of books—and a different grade level of children to teach. Secondly, she feels she has little control over the curriculum, and she has no one to speak with about what she is doing: "I don't know if this is what I should be teaching. Is it too hard for them? Is it too easy? I have never taught children this age before." In this district, both the principal and teachers can be fired if they do not perform well, a decision based on the students' performance on state-mandated tests. This teacher expressed her resentment of the fact that everyone was poised to blame her when things went wrong, but no one was there to help her to do a better job.

Perhaps most disconcerting is the fact that she felt she was being held accountable for circumstances she was powerless to affect. Increasingly, the teacher was the implementor of all district, state, and federal policies, and it was assumed that the teacher is incompetent if students failed to perform well. Yet the sum total of policy mandates can have exponential effect. This teacher's class was relatively large, and, with a budget deficit in the district, she had an aide only 2 hours a week. In support of "inclusion," several children who exhibited learning or emotional difficulties visited her class each day without a special education teacher to assist them. Because of the ethnic and language diversity in the neighborhood, children left the classroom throughout the day to work with special teachers in their native languages, yet this seriously curtailed the amount of time when the entire class was together for instruction in their major subjects. Moreover, district policy required that she "build a case" for each child who needed to be tested for special education placement. She had to create a paper trail of the child's work over time. Similarly, she described how she had to keep meticulous records as part of the district's efforts to decrease truancy. The sum total of these procedures created a large bookkeeping problem for a teacher already trying to keep track of many things. Ms. R.'s records showed one child absent seven times, while the teacher who pulled him out of class for special instruction had him listed as absent nine times. It was thus incumbent upon Ms. R. to reconcile the discrepancy. This overworked, highly stressed teacher was bitter:

> There's a pattern there, so I'm responsible. I'm supposed to send notes if a child is failing and have the parents sign them. I sent eight, and none have returned them. I'm supposed to send progress reports every 2 weeks and keep track of homework assignments. All the tests are supposed to be signed at the bottom, but I'm responsible if all of this is not done.

And yet, with 28 children, her responsibilities for meeting state guidelines and for processing individual children through layers of bureaucracy had grown over time.

For this teacher, the problem was not one of content (she did well on the teacher competency test); rather, she needed time, resources, and support in translating what she knew into a form useful to the students she taught. The context, in which she functioned, however, had become largely inimical to her development as a teacher.

Teacher Involvement in Instructional Decisions and Planning

As described in an earlier chapter (Ashwill, this volume), the United States educational system has a diffuse governance system (see also, Cohen & Spillane 1992). Case Study schools were thus shown to vary, with teachers in some districts enjoying a good deal of autonomy, while teachers in others were expected to meet external demands imposed by local school councils, district school boards, or state performance standards. This section describes three ways that instructional decisionmaking and planning occurred in the schools we visited.

In one elementary school, there was a well-established and clearly shared sense of what was appropriate and desirable for children of each age. Experienced teachers helped new teachers learn "what to do and how things work." In another, a major goal was to meet the external demands of district, state, and even federal guidelines. The math and science curricula had arrived at the school in much the same way as other mandates and were perceived by teachers as being yet another set of expectations from the outside. In the third school, the teachers seemed to interpret changes in practice as "something the office wanted." The contexts in which teachers functioned thus created opportunities and constraints that mirrored other characteristics of the job and school. Three brief examples help to clarify these differences.

Rockefeller Elementary School. Teachers in this school expressed a shared sense of "best practice." For example, teachers themselves had developed the math curriculum that had been in effect for a number of years. It was an "unwritten expectation," explained one fifth-grade teacher, that the experienced teachers would help their new colleagues. "They get manuals when they come in. Then the teachers discuss with them what they do and how things work." Such a belief system precludes pervasive or rapid change, because a consensus about practice has developed over time.

Midtown Elementary School. In this school, teachers described a situation in which their use of time was dictated by the state, (i.e., in terms of the amount of time to be allocated for each subject), their performance level by the district (in the sense that they were required to teach units again if more than 20 percent of their students had not passed), and by the science curriculum that had been selected for them but was perceived by the teachers as being too difficult for the children. The principal in this school was also encouraging teachers to move toward a "whole-language" approach, but the teachers complained that it was impossible to implement such an approach when each subject had to be taught each day for a specific amount of time.

A committee of teachers from across the district had selected the new science curriculum, chosen because kits of scientific experiments came with the series. As one teacher explained:

> So in the past when we've had science books, we haven't had any equipment. All we've had is a book. So this year we have the equipment. Last year and this year it was much better than when we only had a book.

Despite the ostensible value of having kits, virtually everyone I spoke with about this curriculum eventually commented that it was too difficult for the children.

The first observation of a fourth-grade teacher using it showed her carefully preparing her students to take a test scheduled for the following day by giving them the answers ahead of time. First she wrote down the first six answers on the board and instructed the children to write them down on their papers. Then she went through the true and false and multiple-choice questions. The subject matter, dealing with such concepts as velocity, force, and inertia, seemed difficult for children of this age. I circulated through the room later and noticed that children had written down the answers but not the questions. When I later interviewed this teacher, she described how she also felt compelled to help the children when they actually took the test:

> I had to read the questions to them, and I'd give little hints, you know, we were talking about fulcrums, and so I-we were talking about fulcrums and levers and (moves arm to demonstrate) oh, I'd move my arm and say the lever is on the what? And, oh, OK, so then they'd get it, so it's more a visual learning.

She explained that she had shown a list of these terms to friends:

> I had taken those words to a group of friends of mine, and this is a group that hasn't studied science in a very long time, but professionals at that. I asked them: What are these things? What are these things? What are these things? And they were just floored at what a fourth-grader was learning, and I had a lot of parents that are very upset about it, too. This is just too hard. But, then again, is it too hard because they've never had to do it before?

In this district there is a policy that 80 percent of students must get 70 percent or better on each unit test or the unit must be taught again. There were five books in the set, one physics-based, one on geology, one on oceanography, and so forth. However, only one set of classroom books had been purchased for this school—and there were five teachers. Another teacher described how this worked:

> We bought all the equipment that goes with the science series, but we only bought one classroom set of books for each unit. It means we have to share. So this year since there were five of us using the books . . . . I sat down and figured out a schedule of who gets what books when and when you have to quit. So we're all tied into this little schedule, another little box we're tied into.

Thus, it was virtually impossible for a teacher to teach a unit again, because once a set of classroom books had been passed on, it would always be in use. The only way out of the dilemma was to ensure that most students passed—by teaching the test.

As teachers talked about this curriculum, more and more problems emerged. One teacher described a teacher at another grade level who had only taught one unit of science because she didn't understand it. Another described a teacher who wasn't "keeping up"—"so she skips stuff in the book and then when it comes time to test them, you know, she has to cut that part out or else" . . . . Since the administration was encouraging teachers to move toward a whole-language approach, I was told that the principal decided the oceanography book from the next grade level would be good to use with younger students, because it went along with readings in language arts. The book was not only too difficult for many children to read, however, it was also impossible to coordinate language arts and science across five teachers at the same time. Finally, sharing science kits seemed to introduce even more uncertainty. When I observed a student teacher demonstrating an experiment from this series to a class of about 25 students, she reached the critical point when she had to use thermometers only to discover that they were missing from the kit.

Parks Elementary School. Teachers in this school experienced yet another form of decisionmaking and planning. There was an assumption that state performance standards and the School Improvement Plan could be translated quickly and easily (in a matter of hours) into grade-level objectives that, in turn, would drive a yearlong plan and bring coherence to daily scheduling. In fact, however, teachers had little time to plan with others, so they tended to interpret the objectives as an administrative task, namely, something done "at the principal's insistence," "something the office wanted."

Before school began, teachers from each grade level wrote objectives that would help prepare students to meet state performance standards and prepare them for the standardized tests that would be given in the spring. However, teachers were only given a half a day to write objectives for reading, math, science, and social studies. One of the fourth-grade teachers in this school explained the rationale for the objectives they developed:

> We arrived at those objectives based on the criteria for what is going to be tested on the [state test], the state outcomes that were developed for the state, and the SIP, the School Improvement Plan. We used all of those as criteria . . . . for coming up with those grade level objectives.

I was told by another teacher that this aligning of objectives with standards was done "at the principal's insistence." When I asked another why the objectives were written, she dismissed the question with a wave of her hand, as "something the office wanted."

The objectives of the fourth-grade teachers in this school reiterated state guidelines in math (e.g., analyze and create graphs, add and subtract whole numbers through five digits, know multiplication facts and use them to solve division), while the objectives in science were written at such a high level of abstraction that it seemed that almost anything would be possible in the classroom. The science objectives were as follows:

> Students will have a working knowledge of
>
> 1. The concepts and basic vocabulary of biological, physical, and environmental science and their application to life and work in contemporary technological society;
> 2. Social and environmental implications and limitations of technological development;
> 3. Principles of scientific research and their applications in simple research projects; and
> 4. The processes, techniques, methods, equipment, and available technology of science.

Despite the fact that the mathematics objectives were explicit and the science objectives vague, the actual subject matter that each of the teachers was teaching in math and in science during the several days I visited seemed unrelated to what others were doing. For example, since the beginning of the year one had worked on "measurement" and then on "numbers up to seven places," while another had been focusing on multiplication and division. It is of course possible that these teachers simply did not feel compelled to teach the same subject matter at the same time. If this were the case, it is conceivable that they could accomplish similar objectives over the course of the year and yet not be in the same place at any given time.

This was an "open question" I sought to understand. In separate interviews, one teacher explained the science curriculum:

> We're doing the two main units in science . . . . We just know we're both going to be doing the theme on the ecology of the rainforest. We both know we're going to be doing the theme on recycling and the environment, and we got together for like a half day on those two, but we did not get a chance to do a lot in a half a day.

Another fourth-grade teacher offered this explanation:

> I didn't know exactly what the thing was to teach to kids . . . . The textbook isn't a good indicator of what they should learn in fourth grade. We saw the latest, as of like a month or so, we saw what we were supposed to teach the kids [a reference to the performance standards], what they're expected to know, so I also think [of this] as a test year. I've decided for the future, I'm going to teach recycling, states of matter, the life cycle of plants and animals, how animals adapt to their environment, and there's one more thing, maybe something else, I forgot the other thing. But that's, my, maybe the rain, and maybe the rainforest. OK.

The first teacher has been teaching for a number of years, and she drew on her previous experience to link subject areas and to integrate prior knowledge into her curriculum. The second is a relatively new teacher who is trying to formulate a plan of action (this is "a test year"). Both teachers operate in relatively autonomous fashion, without benefit of much discussion with each other or with a broader community of teachers.

These teachers also crafted their curricula from a host of influences. In Rockefeller Elementary School, the math curriculum had been internally developed, while the science curriculum had been adopted by community nomination. In Parks Elementary School, however, the influences were numerous and may help to account for the fact that the teachers were doing such different things. There were state standards, a School Improvement Plan (that included a whole-language initiative), grade-level objectives, a new and old math book (one teacher confessed that she used the old one "on the sly"), and a science curriculum that was grounded, in part, in prepackaged curricula developed within the district or by local organizations (e.g., the zoo, arboretum, aquarium). Both the "recycling" and "rainforest" units derived from such experiences. It was up to the teachers to figure out how these topics might relate to standards and objectives. My impression was that teachers appreciated having a tried and true set of activities (that included a field trip) and did not worry too much about how and where it fit in the grand scheme of things. To the outside observer, however, the lack of coordination between and among these separate initiatives and influences was striking.

In making decisions about what and how to teach, teachers must translate what are often highly abstract goals into a plan of action that will stretch out over 9 months and yet also fill spaces in a day that may be only 30-45 minutes long. As I have described, school- and district-level characteristics have a strong influence on how decisionmaking and planning actually happen, as well as ways in which individual teachers interpret the task.

Teachers' Relationships

Disruptive Students

Students who are difficult or unruly present a special type of problem for teachers because they can be an impediment to classroom instruction and organization. Disruptive students command more attention from the teacher thus making it more difficult to teach and manage the rest of the class. Despite the problems that students with behavior problems pose, there is no single way that these students are dealt with in the United States. Disciplinary policy is usually a composite of local school board policy and teacher and principal implementation. Schools visited as part of the Case Study dealt with issues of student behavior in a variety of ways.

Some of the schools we visited provided teachers with written disciplinary guidelines or suggestions for classroom management. In one Case Study school, the handbook distributed to teachers included classroom management guidelines. Aspects of this guideline placed a great deal if burden of student disruption on classroom mismanagement, quoting William Glasser's *Schools Without Failure*,

> The climate of a classroom can be gauged by the words that are spoken between a teacher and student. There is a close relationship between the classroom atmosphere, almost entirely a product of the teacher, and the degree of disturbance among the individual children.

Some of the Case Study schools also provided guidelines for student conduct as part of either the student or student-parent handbook. For example, Vanderbilt Middle School's student-parent handbook presented a detailed account of the actions both the teacher and the school administration would take if students failed to adhere to both the classroom and school-wide expectations for behavior. At

Springdale High School, the student handbook included an explicit code of student conduct that charted the punishments a student would receive for each infraction. The level of punishment ranged from verbal warnings and in-school suspensions to recommendations for expulsion and out-of-school suspensions. The level of punishment increased with the number of offenses the student committed.

Recently, some educators have pointed out the usefulness of alternative schools for disruptive students, thus allowing teachers in regular schools to focus on teaching students who do not have behavior difficulties (Hiraoka 1996). Others have suggested that schools should spell out a strict code of conduct with explicit punishments for students, beginning in elementary school (Shanker 1995).

Teacher Contact with Parents

The primary relationship that teachers have is with students, and only peripherally with their parents. The most frequent method of communication from schools to parents is through written materials, such as newsletters or flyers, which allow little opportunity for response (Tangri & Moles 1987). Face-to-face interaction with parents usually occurs during an annual school-wide open house and during periodic teacher conferences, fairly formal occasions for discussing student progress. Teachers or parents may schedule other conferences as needed; however, these generally occur in response to difficulties faced by students. Typically, teachers receive little or no training for interaction with parents.

Summary

Although a Case Study cannot be invoked to make sweeping generalizations, the Case Study Project was designed to capture experiences of teachers of math and science across regions, levels of schooling, and achievement levels in the United States. This chapter has reported on teachers' lives and working conditions in 3 regions of the country (southeast, midwest, and west) at 3 grade levels (4th, 8th, and 12th), and in schools rated as low-, middle-, and high-achieving according to students' performance on nationally normed tests. The schools we visited were in large metropolitan areas and included suburban and inner-city schools. Rather than selecting only "typical" schools, the Case Study Project included a broad range of schools.

The training of teachers in the United States occurs primarily in colleges or schools of education located in universities. Aspiring teachers enroll both in education courses and in courses in the basic academic disciplines. The former types of courses are thought to provide them with the information necessary to conduct classes successfully and the latter with the substantive knowledge that will comprise the content of the lessons they teach. In addition, all teachers undergo a period of student teaching. Although some teachers thought it was preferable for a student teacher to be left alone with a class early on, others thought it was important for them to be nurtured and supported by a skilled teacher during the initial weeks of learning to teach.

After graduating from college and obtaining the necessary teaching credentials, most teachers worked in relative isolation. Few had the time or opportunity to collaborate with other teachers, despite the fact that many of the current reform efforts seek greater involvement by teachers.

Reform initiatives in the United States are now aimed at trying to improve the teaching profession by setting higher entrance standards, requiring teachers to renew their certification, creating mentoring programs, and improving salaries and working conditions. Most schools we visited are involved in "site-based management." Teachers in these schools help to formulate a "School Improvement Plan" that sets objectives and holds the promise of giving teachers more of a voice in how schools are run. New instructional practices include team teaching, cooperative learning, and individualized instruction using computers and new types of performance assessments. Teachers in some of the schools visited were also trying to help their students meet new state-level performance standards. As the discussion in this chapter suggests, these innovations were present to varying degrees in the Case Study schools and affected teachers more strongly in some settings than in others. One unintended consequence of the sanctions incurred by the imposition of district and state standards was that they could encourage teachers to "teach the test." They could also be stated at such a high level of abstraction that teachers could—and did—teach very different curricula even at the same grade level in the same school.

The degree of autonomy granted to teachers varies greatly among schools. In some cases teachers had developed new curricula themselves and helped new teachers to understand these materials. More frequently, however, books were already purchased and teachers were required to teach what was available. New math and science curricula had been recently selected by a team of teachers from the district in one case, but other teachers found this particular science curriculum to be too difficult for the children. Although teachers in another school were given time to set grade-level objectives, the time allotted was only one half day, and the teachers were not able to plan together on a regular basis. Teacher involvement and satisfaction varied across schools.

There was great commonality among teachers' responses when they were asked questions that were related to desirable conditions for teaching. These included more flexible schedules, more opportunity to interact with other teachers, increased resources, and more assistance. Teachers in schools in low-income areas generally tended to face the greatest challenges and to be subject to more demands for accountability than teachers in middle- and high-income areas. Teaching in large urban districts was considered more difficult because of greater student diversity, relatively scarce resources, bureaucratic demands, limited parental involvement, and low salaries, among other reasons. As a result, suburban school districts have often been successful in recruiting teachers from urban schools, since they offer more resources, greater flexibility, and better pay.

Schools in the United States were in a period of transition when this study was undertaken. In view of the many initiatives that have been introduced, it is not clear what teachers' lives will be like at the beginning of the next century. In the meantime, teachers are being asked to be the implementers of a host of innovations in instruction and school management. As federal, state, district, and school efforts at improvement occur, one thing becomes obvious: There will be increasing need for cooperation at all levels if teachers are to help members of the next generation meet the ambitious goals that have been set for them.

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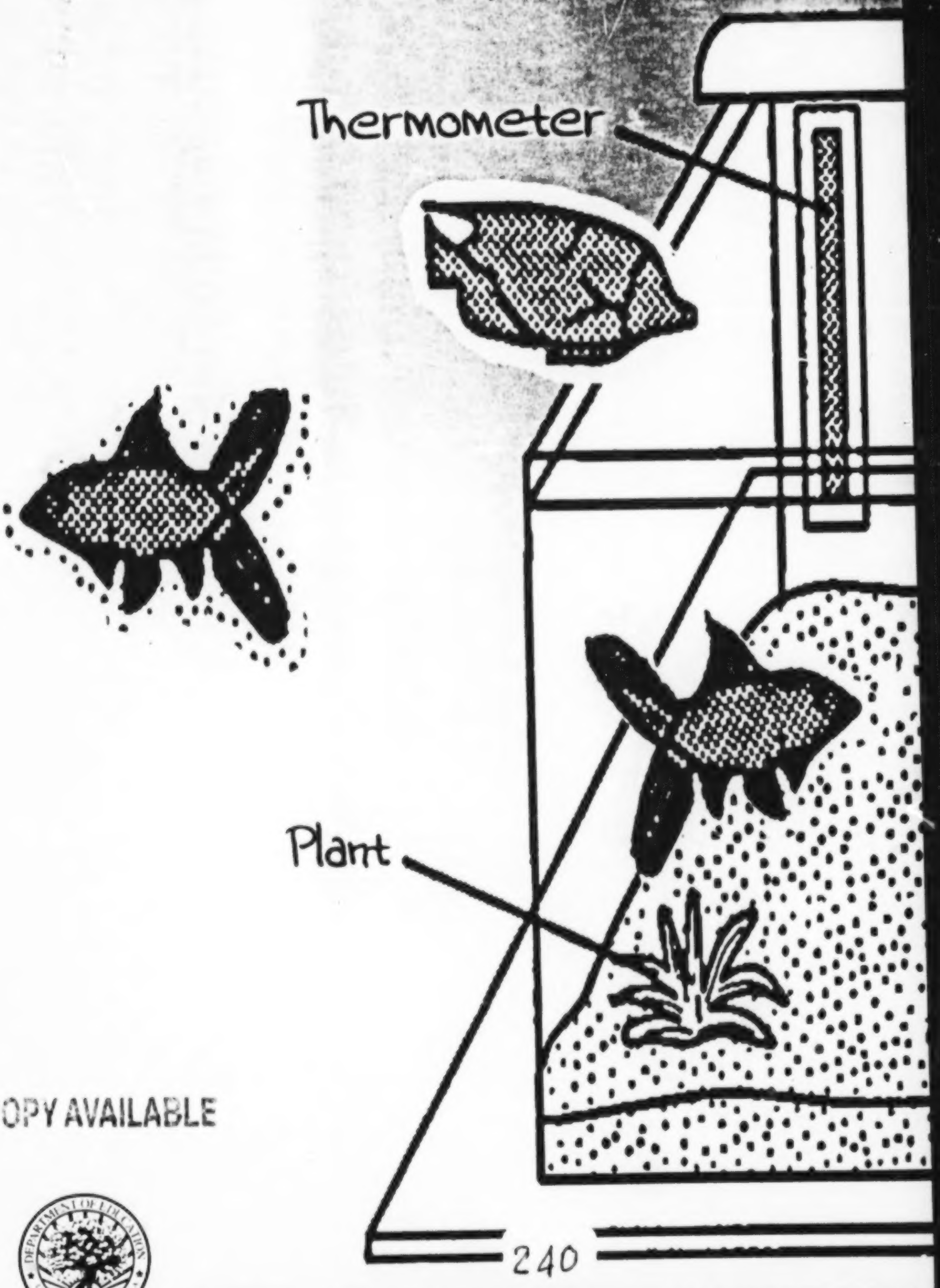

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